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The Effects of a Political Boundary Running Through a Metropolitan Area: A Case Study of the Establishment and Functioning of the Jantzen Beach Shopping Center

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AN ABSTRACT OF THE THESIS OF Rose Romaine Reed for the Master of Science in Geography presented June 30, 1977.

Title: The Effects of a Political Boundary Running through a Metropolitan Area: A Case Study of the Establishment and Functioning of the Jantzen Beach Shopping Center

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Jantzen Beach Shopping Center is an anomaly on the landscape challenging traditional criteria for the location of regional shopping centers. Located on Hayden Island on the Oregon side of the border, it has access from only one exit in each direction off the Interstate 5 freeway. The predominantly industrial and recreational land use of the region within a five minute travel time from the shopping center results in an exceptionally small adjacent residential population. Its potential trade area is further limited by the intervening shopping opportunity for Washington residents afforded by the Vancouver central

business district which lies adjacent to the Interstate freeway two miles to the north.

The retail sales of the Jantzen Beach shopping center exceed 165 percent those predicted by the Huff allocation model for determination of intraurban trade areas.

The success of Jantzen Beach Shopping Center appears to rest upon economic effects of the state boundary between Oregon and Washington. The Columbia River, which forms the boundary, acts as a physical barrier because it has only one automobile crossing within the Portland-Vancouver SMSA, the Interstate 5 freeway. A psychological barrier to interaction between the two states is created by their difference in tax structures. Washington has a 5 percent tax on retail sales whereas Oregon has none.

To determine the significance of the state boundary in explaining the unusual success of the Jantzen Beach shopping center a customer survey was conducted and interviews were held with a number of individuals involved in its establishment. The survey of a customer sample identified residences, shopping frequency, reasons for shopping at Jantzen Beach, and patronage at other centers. The results indicated that the majority of customers were Clark County, Washington, residents who shopped at Jantzen Beach for the following reasons in order: 1) its large selection of goods; 2) its closeness to home;, and 3) the lack of a sales tax on retail goods.

Interviews established that because of the uneven economic growth within the SMSA, the shopping center was located on the Oregon side of the border due to Portland's larger population and the propensity for Clark County residents to shop in Oregon to avoid the sales tax.

Jantzen Beach Shopping Center was effectively located in the first available area for a large shopping center to intercept Washington consumers traveling to Portland for shopping.

The thesis concludes that the excellent performance of Jantzen Beach Shopping Center is due as much to traditional factors of shopping center success as to the effect of the boundary. The former include: 1) good accessibility; 2) good management and marketing; 3) an early start pre-empting the development of other centers; and 4) the use of the center as a recreational place. However, the role of the political boundary has been a significant contributing factor to its success. The variations in tax structures between the two states has encouraged Washington residents to shop in Oregon and concurrently has inhibited shopping center development in Clark County prior to this time.

THE EFFECTS OF A POLITICAL BOUNDARY RUNNING THROUGH A METROPOLITAN AREA: A CASE STUDY OF THE ESTABLISHMENT AND FUNCTIONING OF THE JANTZEN BEACH SHOPPING CENTER

by

ROSE ROMAINE REED

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TABLE OF CONTENTS

PAGE

ACKNOWLEDGEMENTS iii

LIST OF TABLES vi

LIST OF FIGURES viii

CHAPTER

I INTRODUCTION 1

The Jantzen Beach Shopping Center 2

II LITERATURE REVIEW 11

Boundary Studies 11

Evaluating Trade Areas 16

III PROBABILITIES OF SUCCESS OF A REGIONAL SHOPPING CENTER ON HAYDEN ISLAND IF NO STATE BOUNDARY EXISTED 23

The Allocation Model 23

Data Utilized in the Allocation Model

Simulation of the Model 31

Comparison of Success Probabilities of a Hayden Island Site with the Actual Performance of Jantzen Beach Shopping Center 45

IV THE ROLE THE STATE BOUNDARY PLANS ON THE SUCCESS OF JANTZEN BEACH SHOPPING CENTER 47

Survey of Jantzen Beach Customers 49

Results of the Survey 50

The Impact of the State Boundary on the Development of Clark County 58

CHAPTER PAGE

Other Factors Influencing Site and Success of Jantzen Beach Shopping Center 64

Future Impacts on Jantzen Beach Shopping Center 65

V SUMMARY AND CONCLUSIONS 68

SELECTED BIBLIOGRAPHY 71

APPENDICES 79

I ALLOCATION BY RETAIL LOCATION AND MARKET AREA; AND ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE 80

II QUESTIONNAIRE AND CALCULATIONS 96

LIST OF TABLES

TABLE		PAGE
I	Number of Families and Median Income by Census Tract within a Five-Minute Time-Distance of Jantzen Beach Shopping Center	6
II	Travel Times between Sixty-Seven Consumer Residential Areas and Thirteen Shopping Centers	26
III	Selected Regional Shopping Centers: Sales and GLA in the Portland-Vancouver SMSA	27
IV	Percentage Available of Consumer Dollar by Income for Purchases of Shopping Center Goods	32
V	Percentage Income Available for Consumer Shopping by Residential Area	33
VI	Projected Share of the Market--Jantzen Beach	42
VII	Estimated Sales, Jantzen Beach	43
VIII	Estimated Sales for Jantzen Beach by Time-Distance (Millions of 1972 Dollars)	44
IX	Locational Efficiency--Jantzen Beach	44
X	Place of Residence of Jantzen Beach Customers	52
XI	State of Residence of Jantzen Beach Customers	52
XII	Weighted Rankings of Reasons for Shopping at Jantzen Beach Shopping Center	53

TABLE		PAGE
XIII	Population Trends: Clark County-Portland-Vancouver SMSA	58
XIV	Property Taxes Paid per $1,000 of Personal Income	59
XV	Shopping Centers that Clark County Residents Patronize	61
XVI	Clark County Residents' Reasons for Shopping for Assorted Goods	62
XVII	Clark County Residents' Choice of Shopping Centers for Shopping for Assorted Goods	63

LIST OF FIGURES

FIGURE		PAGE
1	Jantzen Beach Shopping Center--Portland-Vancouver SMSA	3
2	Number of Families per Market Area, 1970, Portland-Vancouver SMSA	
3	Average Income per Market Area, 1970, Portland-Vancouver SMSA	9
4	Regional Shopping Centers, Portland-Vancouver SMSA . . .	28
5	Consumer Residential Areas, Portland-Vancouver SMSA . .	30
6	Jantzen Beach, Predicted Share of the Market Exponent of Distance--1.5	36
7	Jantzen Beach, Predicted Share of the Market Exponent of Distance--2.0	37
8	Jantzen Beach, Predicted Share of the Market Exponent of Distance--3.0	38
9	Jantzen Beach, Predicted Share of the Market Exponent of Distance--4.0	39
10	Jantzen Beach, Predicted Share of the Market Exponent of Distance--5.0	40
11	Residence of Shoppers at Jantzen Beach Shopping Center	51
12	Frequency of Shopping Centers Cited from Customer Survey	56

CHAPTER I

INTRODUCTION

> The delimitation and demarcation of political boundaries result in a variety of behavior for residents living in the immediate area as well as for those some distance away. Boundary behavior will be reflected in the perceptions, attitudes, and forms of interaction if there is some special significance attached to the political space immediately beyond the border itself . . . Unless boundaries are purely functional, that is, only administrative as for police or fire or water districts, there is likely to be some significance attached to the ways in which they affect individual and group behavior. Many boundaries in a city or state do not result in differing behavior for those who move across these during the course of a day or week. On the other hand, suburban limits or state lines may affect a resident's decision where to live because of lower property taxes, where to purchase major household commodities because of lower sales taxes, or where to find certain types of recretation that are outlawed within his own space (Brunn, 1974, p. 191).

The Oregon-Washington state boundary running through the Portland-Vancouver metropolitan region provides an interesting example of the effects upon human behavior created by a political boundary. Oregon and Washington are separated by the Columbia River which forms the boundary between the two states. One of the major territorial distinctions between the two states is their sources of revenue for government financing. Revenue is generated in Washington by a 5 percent retail sales tax and property taxes, whereas Oregon relies upon taxation of personal income and property taxes. This discontinuity in taxation seems to have created certain spatial anomalies in the Portland-Vancouver metropolitan area. Thus, consumers appear to have been induced to alter predictable behavior patterns in order to take advantage of opportunities

created by taxation differences. This thesis examines the significance of the discontinuity in taxation to the establishment and functioning of the Jantzen Beach Shopping Center on the Oregon side of the border between the two states.

THE JANTZEN BEACH CENTER

Jantzen Beach Shopping Center was constructed in 1972 on Hayden Island in the Columbia River. Hayden Island is in the state of Oregon, being part of the unincorporated area of Multnomah County. It lies five miles north of the CBD of the city of Portland and two and one-half miles south of the CBD of the city of Vancouver, Washington. Interstate 5 passes over this island with the Hayden Island Exit being the first exit in Oregon when traveling south. All Portland-Vancouver metropolitan area intra-urban traffic passes over the Interstate Bridge and across Hayden Island (see Figure 1).

Hayden Island Amusement Co. was incorporated in 1927. A large amusement park was built in 1928 and occupied the current site of Jantzen Beach Shopping Center until 1970. Around 1945, Waddle's Restaurant was constructed on the island. After the Vanport Flood of 1948, a small grocery store and some temporary housing were built for people who were left homeless by the flood. However, Hayden Island had very little development prior to 1958.

In 1962, a Safeway store was constructed on the island. In 1964, Hayden Island, Inc., under new management, set forth the objectives to develop commercial establishments and residences on the island. Construction started in 1967. In 1969, Denny's Restaurant was opened; in

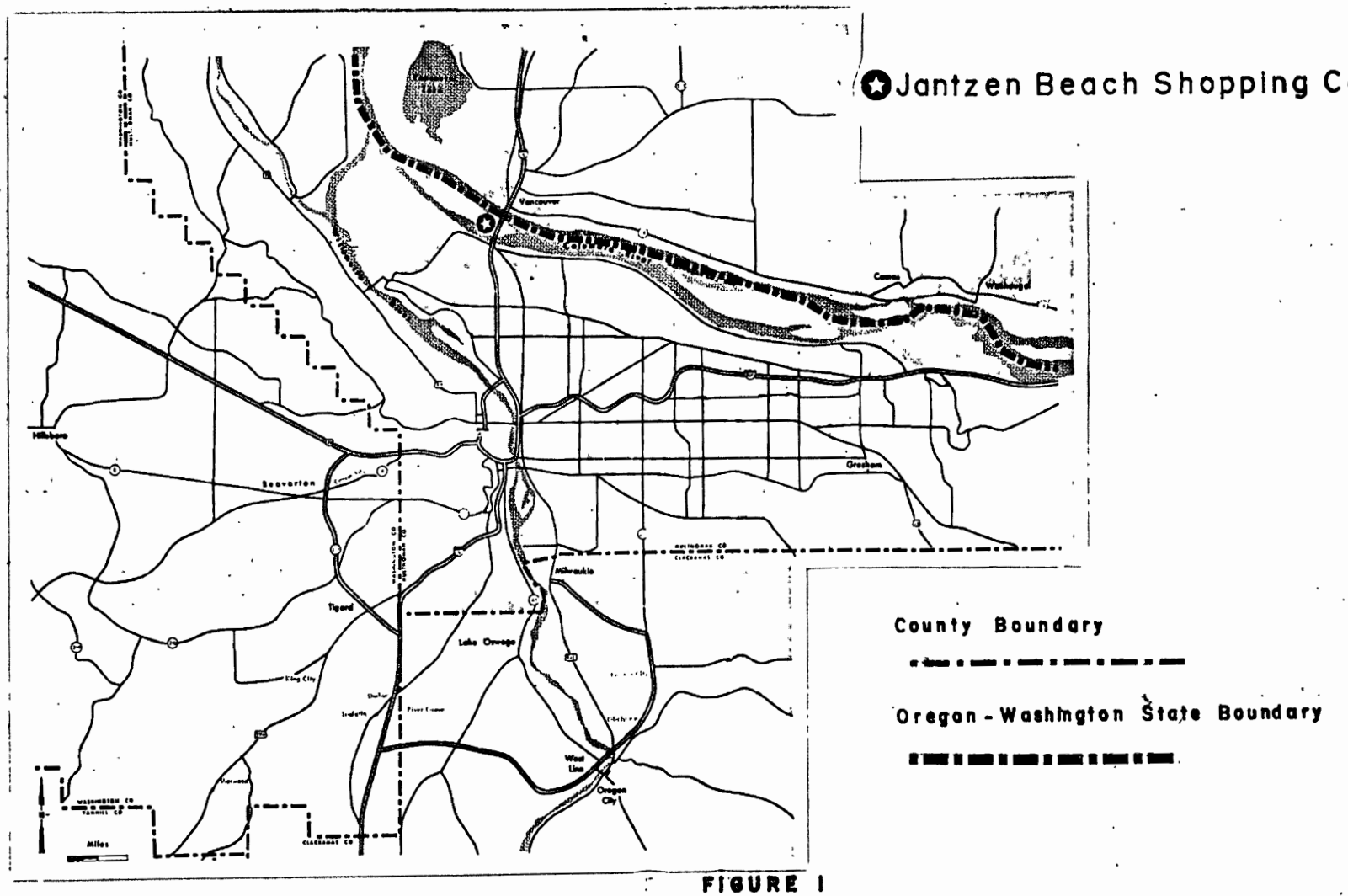


FIGURE 1

JANTZEN BEACH SHOPPING CENTER - PORTLAND-VANCOUVER SMSA

1970, the Thunderbird Inn was opened; and in 1972, Jantzen Beach Shopping Center was opened. By 1977, 144 apartments and 500 mobile homes had been constructed on the island. Currently under construction is another large motel complex, The Red Lion.

Jantzen Beach Shopping Center has approximately 500,000 square feet of gross leasable area and currently another 200,000 square feet are under construction. It contains two major department stores, eighty-two smaller specialty shops, an ice rink, and a movie theater. On Hayden Island, there are also a large motor hotel with 279 rooms, a bank, six service stations, restaurants, and a supermarket. In addition, there is a resident population of approximately 740 persons living in a townhouse complex and mobile court on the island.

Jantzen Beach Shopping Center is a successful regional shopping center. Its policy of being "all things to all people," according to Peter Van Dyke, President of Jantzen Beach, Inc., has made it thrive (Interview). However, its success appears to be anomalous, particularly when considering its location in relation to major residential areas.

Criteria for the establishment of this shopping center do not follow traditional models. Cohen and Applebaum (in Kornblau, 1968) suggest five major considerations in evaluation of potential sites for shopping centers: (1) accessibility, (2) population, (3) competition, (4) economic stability, and (5) trade area boundaries.

(1) Accessibility is a term used to mean "easily reached" by customers and employees. It embraces factors of convenience to shoppers including short distances and ease of driving. Other components include road surface conditions, time-distance, traffic flow, and visibility.

The role of access from arterial and feeder streets is also important (Holdren, 1968).

Hayden Island is accessible only from the Interstate 5 freeway with one interchange for automobiles, buses, and trucks. Therefore, for any customer to shop at Jantzen Beach, except for the 740 residents on the island, he or she must get onto and off of the freeway. As the Interstate Bridge is the only crossing of the Columbia River in the Portland-Vancouver SMSA, congestion during the morning and afternoon rush hours is quite significant. According to Jim Baker, a local real estate broker and commercial finance counselor, this congestion on the bridge is a strong barrier to off-island shoppers (Interview).

Jantzen Beach is helped in accessibility by being located on the only road between Portland and Vancouver. Approximately 89,000 cars pass over the Interstate Bridge daily with about 28,000 vehicle trips measured entering and exiting Hayden Island each day (Buttke, 1975). However, because its only access for automobiles is the freeway, the lack of feeder arterials or back streets onto the island hurt it during congestion hours. Jantzen Beach Shopping Center does enjoy good visibility from the freeway. People who travel by it are aware of it, although to reach the center it is necessary to anticipate exits off the freeway.

(2) Population of the immediate trade area is another important factor to be considered in the estimation of the likely success of a shopping center. The number of people within a five-minute time distance is particularly important. In addition, one needs to consider also its composition, density, growth, income, expenditures, and buying

habits in order to determine potential consumer dollars spent at a regional shopping center.

The area around Hayden Island exhibits a relatively small population within a five-minute travel time due to the prevailing industrial and recreational land use of the area. Southern Vancouver is in primarily commercial usage with lower income housing. Population and median income figures from census tracts adjacent to Hayden Island show that within the first five minutes travel time, the area most likely to draw shoppers, a rather sparse population has median incomes less than the SMSA averages (see Table I).

TABLE I

NUMBER OF FAMILY AND MEDIAN INCOME BY CENSUS TRACT WITHIN A FIVE-MINUTE TIME-DISTANCE OF JANTZEN BEACH SHOPPING CENTER

Tract No.	No. of Families	Median Income
72.00	755 <159[a] 596[b]	$ 9,813 10,059
34.01	873	6,103
37.01	1,104	9,583
37.02	664	9,833
38.01	871	8,084
38.02	901	9,259
TOTAL	5,158 families within a 5-minute time-distance	SMSA Median Income, $10,458

SOURCE: Bureau of Census 1970 Census Tracts.

[a]Population not on Hayden Island.
[b]Population on Hayden Island.

The population within the first five minutes is quite small and is not expected to increase because of the zoning of the area. For

areas further than ten minutes away, the Lloyd Center, downtown Portland, and downtown Vancouver provide alternative opportunities for potential customers in the Portland Metropolitan Area. A cursory examination of population and income maps (see Figures 2 and 3) reveals a disproportionately small population and low income in the first ten minutes of travel time than would normally be expected for a regional shopping center.

(3) Competition: Jantzen Beach Shopping Center faces its competition primarily from other shopping areas in Oregon. Portland downtown, with over 2,000,000 square feet Gross Leasable Area (GLA), is approximately six miles away from Jantzen Beach. Lloyd Center, approximately 1,500,000 square feet GLA, is located five miles from Jantzen Beach in the northeast Portland area. Vancouver has a relatively small central business district with only one major department store, and one shopping center, Tower Mall, with approximately 250,000 square feet GLA. The new Vancouver Mall, scheduled to open in late 1977 with 800,000 square feet GLA, is expected to provide Jantzen Beach with competition for Vancouver patronage.

(4) Economic Stability: The concept of economic stability encompasses the overall economic health of an entire region rather than only the immediate area surrounding a shopping center site. Shopping center developers are interested in population growth rates, employment rates, and other economic characteristics which are indicative of stable economies. The Portland-Vancouver SMSA, in which Jantzen Beach is located, due to its economic diversification has maintained a fairly stable growth rate and has experienced no large fluctuations in employment.

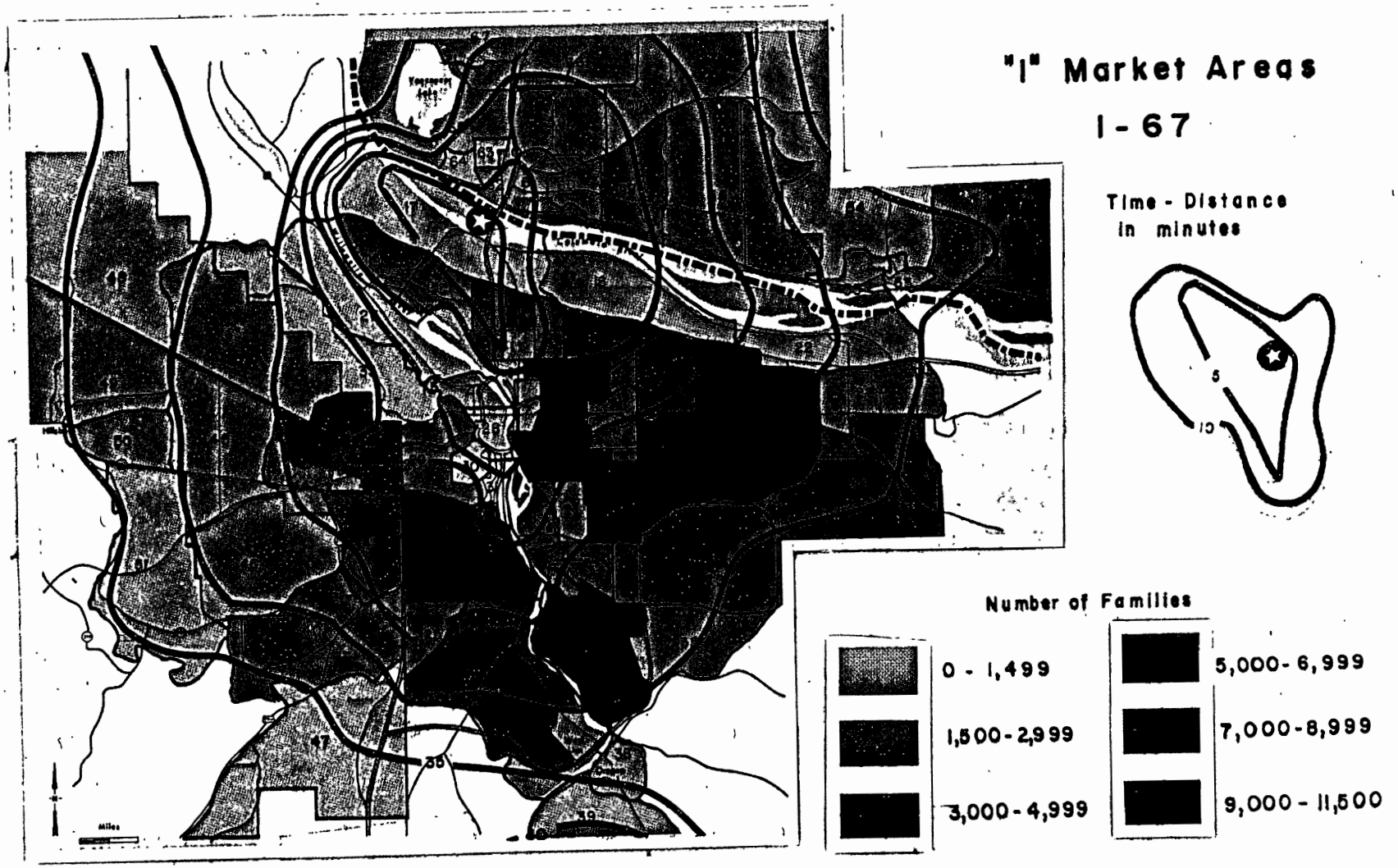


FIGURE 2

NO. OF FAMILIES PER MARKET AREA, 1970, PORTLAND-VANCOUVER SMSA

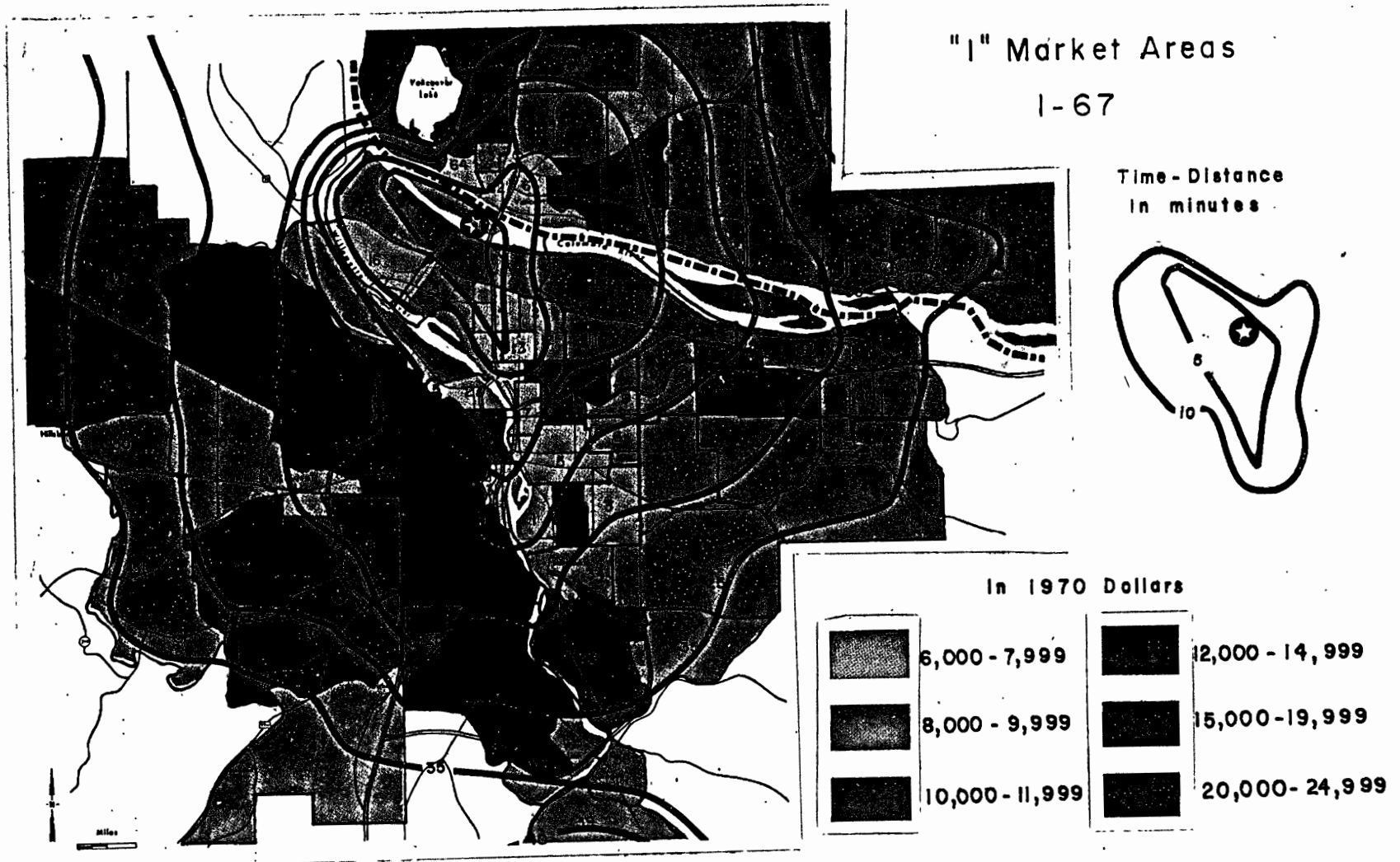


FIGURE 3

AVERAGE INCOME PER MARKET AREA, 1970, PORTLAND-VANCOUVER SMSA

This factor thus would not be a negative one affecting the establishment and functioning of a center on Hayden Island.

(5) Trade Area Boundaries: Determination of intraurban trade areas is of prime importance in the decision of site location for regional shopping centers. A trade area is simply the area served by a particular shopping center. Trade areas fluctuate due to barriers, both psychological and physical, accessibility, and competition from other centers. Although the term "boundary" indicates a discontinuity in pattern, in the case of a trade area boundary what generally occurs is a fading out or overlapping between shopping center trade areas rather than an abrupt stoppage of consumer patronage.

Important considerations in viewing a trade area are its population and potential expenditures, accessibility to site, and effects of competition from other shopping centers. Approximations of the trade area are made to determine potential sales and optimality of location of the center. Jantzen Beach, located in an area of relatively low population, would appear to have an unusually small trade area.

From the criteria advanced by Cohen and Applebaum, it thus would appear that Hayden Island is an unlikely site for a regional shopping center. Jantzen Beach's establishment and apparent success seem clearly related to its state border location. This role played by the boundary with its discontinuity in system of taxation will be explored first by establishing a more precise predicted degree of success for a shopping center on Hayden Island without regard to the presence of the boundary, and then by examining the considerations and motivations of a representative sample of consumers at the shopping center.

CHAPTER II

LITERATURE REVIEW

BOUNDARY STUDIES

The literature of political geography provides an assortment of perspectives concerning the nature and function of boundaries. International border disputes particularly have been the focus of most boundary studies. Rarely have geographers dealt primarily with the political and economic functions of internal boundaries. The few studies of such borders have dealt mainly with approaches to delimiting them.

Some of the observations concerning international borders do have relevance to the problem considered in this thesis, however. Thus, Lösch discusses implications and examples of national boundaries as a factor in the location of industrial enterprises. In his discussion on the role of national boundaries he cites as an example the reasons that led Swiss entrepreneurs to move their enterprises or branches to Germany and the reasons for establishing them precisely in the border region (Lösch, 1954, 388). The distinct advantage was a savings in German custom duties which in 1926-27 approximated 5 percent of sales. Another, more questionable element was the cheap labor in southern Germany.

In a discussion of the Canadian-American boundary, Lösch again points to the savings of customs or tariffs as a reason for the location of branch offices in Canada.

> The importance of the frontier is further shown by the fact that of more than 1,000 American-owned Canadian factories, approximately 9 percent are in border towns and 32 percent are in Toronto, which is virtually on the line (Lösch, 1954, 384).

The classic example is the American automobile branch plants in Windsor, which lies across the Detroit River from Detroit. Accentuating the importance of location within Canada is the fact that Canadian branches enjoy tariff preferences in the British Empire (Lösch, 1954, 385).

In discussing effects on retail trade along the border, Lösch compared retail sales and discovered the preponderance of certain types of transactions occurring in each of the two states. For example, wool clothing, jewelry, and furs were less expensive in Canada, whereas shoes, women's clothing, and tobacco were considerably less expensive in the United States, thus promoting a border retail migration. Lösch also discusses the effect of the border in encouraging the development of twin cities where one would have been satisfactory (Lösch, 1954, 448).

In a more recent study, Ayer and Layton (1974) examine the effects of the border on a U.S.-Mexican border town, Nogales, Arizona. Because of the U.S. government's restriction on Mexican migrant farm labor entering the United States, the Mexican government provided a twelve-and-one-half-mile border zone where all parts and raw materials could be brought in for manufacture duty free as long as the production was exported. The United States also lowered its restrictions on import duties to the value added in manufacture. The lower cost labor encouraged plants to migrate to Mexico.

In some cases twin plants have built up, where

> . . . U.S. firms can take advantage of both cheap Mexican labor as well as relatively inexpensive U.S. capital by locating labor

> intensive operations in Mexico, and those operations which are capital intensive and for which special tariff advantages are not available, in a U.S. twin plant (Ayer & Layton, 1974, 109).

The impact of these twin plants on Nogales has been (1) a drop in unemployment in the border area, (2) a rise in demand for retail services, and (3) decrease in the level of poverty. The authors conclude that the border industries have had a positive impact on the living standards of both states in the border area.

Economic effects of internal boundaries have been examined by Edward Ullman (1939) in the border area between Rhode Island and Massachusetts. He explained regional differentiation between the two states as an effect of the boundary, including differential tax laws accounting for some instances of industrial site location. He also cited fundamental differences in belief structures between the two states as a factor in site location of some types of entertainment. For example, within the Rhode Island border area is Boston's nearest race track.

Several other studies have been made concerning the effect of state and local taxes on industrial location (Floyd, 1952; Williams, 1967; Campbell, 1958; Due, 1961). Most have found that, in general, the amount and type of taxation does not have a determining impact on site location but does constitute a contributing factor. However, unfavorable images of certain states, such as those of Massachusetts, Pennsylvania, Michigan, Wisconsin, and, to some extent, Minnesota, have hindered industries from locating there (Due, 1961, 168).

A study comparing state and local taxes among the states and Minnesota found that although taxes in Minnesota are considerably higher, differences in production costs among states vary so much that even

if taxes were eliminated in Minnesota, there would not be any major changes in Minnesota's relative cost position (Williams, 1967, 56).

Campbell, using the New York Metropolitan Region as a study area, discussed the role of taxes in industrial site location. The New York Metropolitan Region encompasses three states having varied taxing systems. New Jersey receives its revenue from property tax, whereas companies in New York pay a corporate income tax. Connecticut finances its services by a combination of both property and income taxes. Using a sample of twenty-five manufacturing establishments, Campbell selected sixty-four sites in all parts of the region and estimated state and local taxes for each of the twenty-five plants. Average costs for the states were similar and variation was not due to differences in taxation between the states. However, in specific types of industry, such as those establishments with high personal property in relation to total taxable property, would find it beneficial to locate in New York. His study indicated that this in fact did occur, but he is careful to state that "it would be a mistake to assume that this locational pattern was caused by the differences in the New Jersey and New York tax structures" (Campbell, 1958, 205).

Another type of internal boundary study is Nelson's (1952) examination of the anomaly of Vernon, California. Due to incorporation, and to specific intent of the political leaders of the town, it has become an industrial and transportation center. Seventy-five percent of the developed land is in manufacturing and wholesaling usage. This can be compared with an average city which has approximately 6 percent of its land in such use. Manufacturing concerns appear immediately at the city

limits. Nelson concludes in his study that the city limits of Vernon are important in understanding land usage in the Los Angeles area due to the town's unique historical development.

An early quantified study on internal boundary effects on spatial interaction was J. Ross MacKay's "The Interactance Hypothesis and Boundaries in Canada: A Preliminary Study" (1958). He proposed that interactance can be studied by means of a modified gravity model where:

$$I = \frac{K\ T\ P_A\ P_B\ A_B}{D}$$

I = interaction of any type (trade, social, recreational educational)

K = a constant equal to the reciprocal of the total number of interactions of the group

T = time period over which interactions are measured

$P_A\ P_B$ = populations of the two interacting groups

$A_A\ A_B$ = specific indices of per capita activity of the populations P_A and P_B

D = space dimension, measured in distance, miles, travel time, etc.

In any type of gravity model, "distance is assumed to be a smoothly continuous function and can nevertheless be expressed as a straight line" (Lowe, Moryadas, 1975, 185). MacKay tested the hypothesis that boundaries, both internal and international, interrupt this linear function and inhibit spatial interaction.

Using telephone calls between pairs of Quebec cities as a base, calls were then examined between Quebec cities and Ontario cities. Interactions dropped 80 percent between the two provinces. This decrease

became even more evident when comparing calls across the international boundary. Measuring the frictional effect of the boundary as an equivalent of distance, MacKay estimates that between Quebec and English Canada the frictional effect of the boundary is equal to an increase of distance of from five to ten times.

MacKay's use of a modified gravity model represented a new approach to understanding boundaries and their impact on circulation patterns. Recent studies of the political boundary have become more functional, stressing the separation of two political entities and its impact on border areas (Symanski, 1974). However, there is a lack of literature concerning a political boundary's impact on circulation patterns in border areas. Moreover, although some studies have concerned themselves with the mosaic of laws within the United States, few have dealt with specific features of the border landscape.

EVALUATING TRADE AREAS

Studies concerning retailing trade areas started with Reilly's Law of Gravitation for interurban trade areas (Huff, 1961). His formulation was based on the relative pulling power between competing cities. The intervening population would be attracted to the cities in direct proportion to the population of the two cities and in an inverse proportion to the squares of the distances between the two cities.

$$\frac{B_a}{B_b} = \left(\frac{P_a}{P_b}\right)\left(\frac{D_b}{D_a}\right)^2$$

Where:

B_a = the proportion of the trade from the intermediate city attracted by city A;

B_b = the proportion of the trade from the intermediate city attracted by city B;

P_a = the population of city A;

P_b = the population of city B;

D_a = the distance from the intermediate town to city A; and

D_b = the distance from the intermediate town to city B (Huff, 1961).

Later Reilly's Law of Gravitation was modified by Curtis Publishing Co. to determine breaking points between retailing establishments within urban areas by using a modification of square footage for each retail center rather than population size, and travel time between centers, rather than physical distance (Huff, 1961). This allowed the bounding of trade areas for an analysis of numbers of people who lived within them.

Later studies focused on characteristics of consumer spatial behavior and "utility," which is measured in degrees of consumer satisfaction. The concept of "utility" embodies a number of assumptions, some of which are questionable. Among these is an assumed logical relationship between types of satisfaction, i.e., if A is preferable to B and B is preferable to C, then A is preferable to C (Quandt, 1956). Secondly, it assumes that it is possible for an individual to know all the alternatives from which he has a choice. Third, it assumes that he is able to choose the alternative that maximizes his utility or

satisfaction (Hansen, 1972). This theoretical concept of "utility" has problems because it is apparent that consumers do not exhibit a logical ordering of preferences, that they do not have full knowledge of opportunities open to them, and that they are not able to weigh rationally choices that are presented.

> It cannot be ruled out that the traditional utility model may reflect individual consumer choice behavior in some special situations, but it is very unlikely that it represents the kind of cognitive process consumers most commonly apply (Hansen, 1972).

A more realistic appraisal of human behavior involves a combination of "bounded rationality" and "satisficing behavior." Bounded rationality assumes "that an individual's behavior is based upon his perception of the environment and not upon the environment as it actually exists" (Cadwallader, 1975). Satisficing behavior assumes decision making that adequately meets a perceived need, but is not necessarily optimal. Difficulties in operationalization of satisficing behavior has left bounded rationality as a primary concept in analyzing man's actions.

Applying the concept of bounded rationality to a consumer's choice of shopping areas, Thompson (1964) has identified five major elements: (1) broad or large selection; (2) the perception that heightened competition may result in lower prices; (3) geographical location of shopping centers, i.e., friction of distance; (4) existence of non-metered parking; and (5) prestige of shopping at new centers (Thompson, 1964). Hansen (1972) suggests other less quantifiable factors as influencing individual consumer choice: the value of time traveled and effort expended in finding a consumer good; the likelihood of success in finding the good wanted at a particular center; the choice between alternatives;

and the willingness to face risk as related to self-esteem in choosing among the alternatives.

David Huff (1961) devised a probability model of consumer spatial behavior using size of shopping center as a variable, based principally upon an assumption of largeness of selection and attractiveness ("bigger is better"), and a time distance variable for ascertaining the effects of competition, accessibility, and utility for consumer behavior. His analysis utilized the conceptual properties of the gravity model with its focus upon consumer behavior rather than upon the retail shopping center itself. The formula for his model is:

$$P_{ij} = \frac{\frac{S_j}{T_{ij}^{\lambda}}}{\sum \frac{S_j}{T_{ij}^{\lambda}}}$$

Where:

P_{ij} = the probability of a consumer at residential area i traveling to a shopping location j

S_j = the size of the shopping center j

T_{ij} = the travel time involved in getting from a consumer's residential area to shopping center j

λ = a parameter, which reflects the effects of travel time on various kinds of shopping trips

Huff's model is built on the assumption that consumer spatial behavior can best be described as a probabilistic phenomenon and that the likelihood of a consumer selecting to shop at one of two centers is not determined by the presence of any other shopping centers. It is assumed that the consumer is using bounded rationality. The consumer cannot

determine choices perfectly or maximize his utility because perceptual differences between choices are so small that when confronted with a choice he will tend to choose randomly among the alternatives in some constant proportion in a relative utility. The assertion in Huff's model is "that the utility is proportional to the probability of being chosen" (Huff, 1961, 4).

Huff asserts that two variables exert so much influence on a consumer's choice of shopping centers that they are the only ones that need be considered in evaluating their potentials. These are number of items carried by shopping centers (largeness of selection) and travel time from consumer's residence to shopping center. Because of the problems of measuring the number of items, Huff substitutes size of the shopping center (S_j) in terms of gross leasable area (GLA). Size relates directly to consumer risk taking and ease of finding the wanted article in Huff's view. The concept of convenience and doing all one's shopping in one place is another important supposition contained within the size of shopping center.

The impact of travel time (T_{ij}) on the utility of a trip can be viewed as a form of opportunity cost in which the utility of shopping at a particular center is inversely related to the effort, time, and expense of getting to the center. Travel time is weighted in Huff's model by a distance exponent, λ, that takes into account the different frictional impacts of distance for different types of goods and different types of competitive situations.

> It may be expected that consumer travel would exhibit steep distance-decay functions. Additionally, the location of competing facilities, differentiated by price, quality, variety and other

attributes, has been demonstrated to have a crucial role in consumer travel behavior (Lowe, Moryadas, 1975, 188).

Because the frictional effect of distance varies so widely, a distance exponent must be determined for any specific type of shopping or interaction measured. Lakshmanan and Hansen (1965a), in a model determining consumer dollars allocated in the Baltimore metropolitan area, determined a distance exponent value of 0.91 for shopping trips. Huff, in a study in Los Angeles, determined a distance exponent of .82 for furniture shopping and a distance exponent of .66 for clothes shopping (1961). The consumer's willingness to travel for a particular good, or the utility he can expect to receive and the costs of travel, will determine the frictional effects of distance, and the distance exponent to be used.

The gravity model serves as an analytical device to predict interaction between areas (Lycan and Weiss, 1974). Most studies have been used to replicate existing behavior (Lakshmanan and Hansen, 1965; MacKay, 1958). The use of the gravity model or one of its modifications can provide a predictive basis for shopping center location. By inserting the proposed center into the model, the effects upon its drawing powers of competition and travel time can be estimated. Usually it is important to use a variety of distance exponents in the function because the distance exponent also varies according to type of good sought, intervening opportunities, and topographic features. "The output of the model is initially a percentage or fractional allocation of trips from one origin to each of several specific destinations" (Lowe and Moryadas, 1975, 187). With this information it is possible to determine shopping dollars spent in each residential area at a particular shopping center.

This can be done by estimating the consumer dollar available per area and multiplying it by the percentage allocated to each center. Totaling residential area dollars per center provides the researcher with shopping dollar potential for the proposed center.

Few geographers have studied the relationship of political boundaries to consumer behavior. Political boundaries as a hindrance to human interaction have been observed (Lösch, 1954; Whittlesey, 1935; Hartshorne, 1933; Nelson, 1952) and to some extent quantified (MacKay, 1958). Variation in laws between political units have been seen to create interruptions in patterns of circulation. Gravity models measuring potential interactions have been used for analyzing potential retail sites and for measuring effects of political boundaries.

CHAPTER III

POSSIBILITIES OF SUCCESS OF A REGIONAL SHOPPING CENTER ON HAYDEN ISLAND IF NO STATE BOUNDARY EXISTED

The unusual degree of success of Jantzen Beach Shopping Center can be measured by comparison of its actual performance with the probable performance of its site based on a theoretical model of retailing developed by David Huff. Huff's model for measuring store location efficiency was chosen because it includes within its inputs three of the major elements in successful shopping center operation: population, accessibility, and competition. The model's expected locational efficiency for a shopping center site on Hayden Island will be compared with the actual performance of Jantzen Beach Shopping Center.

THE ALLOCATION MODEL

The model used is actually a modification of Huff's model developed by Dr. Richard Lycan and Dr. Jim Weiss (1974) at Portland State University. Its formula is:

$$P_{ij} = \frac{\frac{S_j}{T_{ij}^{\lambda}}}{\sum \frac{S_j}{T_{ij}^{\lambda}}}$$

where:

P_{ij} = the probability of a consumer at residential area i traveling to a shopping location j;

S_j = the size of the shopping center j measured in dollar sales;

T_{ij} = the travel time involved in getting from a consumer's residential area to shopping center j;

λ = an exponent which reflects the differing frictional effects of travel time on various kinds of shopping trips.

The share P_{ij} is applied to the shopping dollars originating in each defined consumer's residential area in order to predict shopping expenditures at each shopping center. The formula is:

$$E_j = \sum_{i=1}^{m} P_{ij} \cdot C_i$$

where:

E_j = expected shopping expenditures at shopping location j;

C_i = consumers' expenditures originating in residential location i for m locations.

The optimality of the site location (locational efficiency) as predicted by the model is rendered in percentages by the formula:

$$\text{Locational Efficiency} = \frac{(\text{sales at location}) \div (\text{sum of all sales})}{(\text{size of location}) \div (\text{sum of sizes of all retail locations})}$$

These percentage values allow one to evaluate relative performance. A value of 100 percent or greater means that a center is receiving a greater market share than would be expected for its size (Lycan and Weiss, 1974).

Data Utilized in the Allocation Model

Thirteen shopping centers in the Portland-Vancouver SMSA are analyzed using the following data.

Time Distance. Time distance values, T_{ij}, are based on data obtained from the Oregon Department of Transportation. The 1975 Portland-Vancouver Metropolitan Area Transportation Study provides travel times between 738 regions into which the metropolitan area was divided. A selection of sixty-seven PVMATS regions was made based on their central location within sixty-seven groups of census tracts utilized for population and income data. If the central PVMAT region was bisected by a highway or major arterial, an adjacent PVMAT region was chosen to better represent consumer traffic for the group of census tracts. Travel times were then computed between the sixty-seven PVMATS regions and thirteen principal shopping centers (see Table II). A constant of 5.0 minutes was added in the model to include preparation and parking time.

Size of Retail Locations. S_j, the size of the retail locations, was compiled from a variety of sources and expressed in millions of dollars of sales. The thirteen shopping centers, both planned and unplanned, were chosen on the basis of having more than 200,000 square feet of gross leasable area (GLA). True sales values were established for ten of the thirteen shopping centers from the 1972 Census of Retail Trade. The other three shopping centers were determined by multiplying the GLA area by national median sales value per square foot for regional shopping centers as given in Dollars and Sense published by the Urban Land Institute (1972). (See Table III and Figure 4).

TABLE II

TRAVEL TIMES BETWEEN SIXTY-SEVEN CONSUMER RESIDENTIAL AREAS AND THIRTEEN SHOPPING CENTERS

	DISTANCES - RETAILING LOCATION BY												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	19.00	13.00	16.00	17.00	13.00	11.00	15.00	9.00	25.00	17.00	25.00	30.00	18.00
2	22.00	9.00	12.00	14.00	16.00	14.00	15.00	10.00	21.00	24.00	25.00	31.00	24.00
3	26.00	8.00	10.00	12.00	15.00	16.00	19.00	8.00	19.00	27.00	29.00	34.00	28.00
4	25.00	1.00	5.00	7.00	18.00	16.00	19.00	11.00	12.00	27.00	29.00	34.00	26.00
5	19.00	9.00	9.00	11.00	19.00	8.00	10.00	14.00	18.00	22.00	22.00	28.00	20.00
6	22.00	5.00	4.00	6.00	19.00	11.00	16.00	12.00	14.00	29.00	25.00	31.00	27.00
7	13.00	13.00	10.00	9.00	21.00	2.00	6.00	16.00	20.00	2.00	18.00	23.00	19.00
8	16.00	10.00	7.00	7.00	22.00	6.00	9.00	16.00	18.00	24.00	20.00	26.00	22.00
9	18.00	8.00	4.00	4.00	21.00	8.00	12.00	14.00	15.00	27.00	22.00	27.00	26.00
10	10.00	16.00	13.00	11.00	24.00	4.00	7.00	20.00	23.00	20.00	14.00	21.00	18.00
11	12.00	13.00	10.00	8.00	27.00	9.00	5.00	20.00	19.00	27.00	18.00	24.00	25.00
12	10.00	15.00	12.00	10.00	27.00	6.00	13.00	22.00	21.00	24.00	17.00	22.00	22.00
13	6.00	19.00	15.00	14.00	26.00	6.00	12.00	23.00	24.00	22.00	12.00	18.00	20.00
14	10.00	16.00	13.00	11.00	25.00	4.00	10.00	21.00	23.00	22.00	16.00	22.00	20.00
15	8.00	24.00	21.00	19.00	31.00	12.00	17.00	28.00	29.00	28.00	14.00	19.00	24.00
16	9.00	26.00	23.00	21.00	33.00	14.00	20.00	30.00	31.00	27.00	15.00	21.00	25.00
17	4.00	20.00	16.00	15.00	29.00	9.00	14.00	26.00	24.00	25.00	10.00	16.00	22.00
18	12.00	15.00	11.00	10.00	28.00	13.00	20.00	21.00	19.00	31.00	18.00	24.00	29.00
19	19.00	9.00	4.00	2.00	24.00	11.00	16.00	17.00	13.00	27.00	24.00	29.00	25.00
20	22.00	9.00	6.00	5.00	26.00	15.00	21.00	19.00	8.00	31.00	26.00	32.00	31.00
21	25.00	7.00	6.00	8.00	24.00	17.00	22.00	17.00	7.00	33.00	29.00	35.00	32.00
22	22.00	15.00	12.00	10.00	30.00	19.00	23.00	23.00	8.00	34.00	26.00	32.00	24.00
23	28.00	18.00	14.00	13.00	34.00	22.00	27.00	27.00	6.00	38.00	32.00	38.00	37.00
24	30.00	13.00	13.00	15.00	29.00	24.00	31.00	23.00	3.00	40.00	34.00	40.00	40.00
25	30.00	9.00	12.00	14.00	13.00	22.00	24.00	6.00	20.00	27.00	34.00	40.00	28.00
26	17.00	32.00	29.00	26.00	34.00	19.00	17.00	30.00	41.00	25.00	19.00	25.00	23.00
27	11.00	17.00	15.00	12.00	23.00	4.00	5.00	20.00	23.00	15.00	17.00	22.00	13.00
28	12.00	15.00	13.00	12.00	21.00	6.00	3.00	18.00	23.00	15.00	18.00	24.00	12.00
29	22.00	22.00	23.00	21.00	23.00	15.00	14.00	20.00	34.00	13.00	24.00	29.00	11.00
30	21.00	23.00	23.00	21.00	24.00	15.00	14.00	22.00	35.00	13.00	23.00	28.00	11.00
31	17.00	18.00	17.00	15.00	20.00	9.00	8.00	16.00	29.00	14.00	20.00	25.00	16.00
32	22.00	22.00	23.00	21.00	22.00	15.00	15.00	20.00	34.00	9.00	24.00	30.00	10.00
33	21.00	37.00	34.00	31.00	38.00	24.00	24.00	34.00	46.00	24.00	23.00	29.00	21.00
34	26.00	6.00	11.00	13.00	13.00	18.00	20.00	6.00	20.00	23.00	30.00	35.00	24.00
35	30.00	14.00	17.00	19.00	8.00	23.00	24.00	5.00	23.00	26.00	35.00	40.00	28.00
36	28.00	17.00	20.00	22.00	5.00	21.00	22.00	8.00	29.00	24.00	33.00	38.00	25.00
37	27.00	24.00	25.00	23.00	11.00	20.00	19.00	18.00	35.00	15.00	30.00	36.00	17.00
38	35.00	18.00	21.00	23.00	2.00	27.00	26.00	9.00	30.00	20.00	37.00	43.00	22.00
39	41.00	24.00	27.00	29.00	9.00	33.00	32.00	15.00	36.00	27.00	44.00	49.00	29.00
40	31.00	31.00	32.00	30.00	23.00	23.00	25.00	28.00	43.00	6.00	34.00	39.00	6.00
41	23.00	25.00	25.00	23.00	23.00	18.00	18.00	22.00	36.00	4.00	27.00	33.00	3.00
42	20.00	24.00	23.00	22.00	26.00	15.00	15.00	25.00	34.00	7.00	24.00	30.00	5.00
43	26.00	30.00	30.00	28.00	34.00	22.00	21.00	31.00	40.00	15.00	30.00	36.00	12.00
44	23.00	28.00	27.00	25.00	25.00	18.00	17.00	28.00	38.00	6.00	27.00	32.00	3.00
45	27.00	31.00	30.00	29.00	31.00	22.00	21.00	31.00	41.00	12.00	30.00	36.00	10.00
46	29.00	34.00	33.00	31.00	29.00	24.00	24.00	34.00	44.00	10.00	33.00	38.00	9.00
47	35.00	26.00	29.00	30.00	11.00	27.00	28.00	17.00	38.00	15.00	37.00	42.00	17.00
48	32.00	37.00	36.00	34.00	42.00	28.00	31.00	40.00	46.00	23.00	38.00	44.00	21.00
49	34.00	38.00	37.00	35.00	40.00	29.00	28.00	41.00	47.00	21.00	40.00	45.00	19.00
50	33.00	37.00	36.00	34.00	38.00	23.00	31.00	40.00	46.00	19.00	39.00	44.00	16.00
51	33.00	38.00	36.00	35.00	34.00	29.00	28.00	37.00	47.00	15.00	36.00	42.00	13.00
52	30.00	51.00	47.00	46.00	58.00	36.00	39.00	55.00	54.00	51.00	24.00	20.00	49.00
53	29.00	50.00	46.00	45.00	57.00	38.00	38.00	54.00	53.00	51.00	23.00	19.00	48.00
54	31.00	53.00	49.00	47.00	60.00	40.00	41.00	56.00	56.00	53.00	25.00	20.00	51.00
55	27.00	48.00	45.00	43.00	56.00	36.00	37.00	52.00	52.00	49.00	21.00	18.00	47.00
56	21.00	43.00	39.00	38.00	50.00	30.00	31.00	46.00	46.00	43.00	15.00	10.00	41.00
57	21.00	42.00	38.00	37.00	49.00	29.00	30.00	46.00	45.00	42.00	15.00	12.00	40.00
58	15.00	37.00	33.00	31.00	44.00	24.00	25.00	40.00	40.00	37.00	9.00	4.00	35.00
59	14.00	35.00	31.00	30.00	42.00	22.00	23.00	39.00	38.00	35.00	7.00	10.00	33.00
60	13.00	34.00	30.00	29.00	41.00	21.00	22.00	38.00	37.00	34.00	7.00	2.00	32.00
61	10.00	31.00	28.00	26.00	38.00	19.00	20.00	36.00	35.00	32.00	4.00	6.00	29.00
62	11.00	33.00	29.00	28.00	40.00	20.00	21.00	36.00	36.00	33.00	4.00	9.00	31.00
63	12.00	33.00	29.00	26.00	40.00	20.00	21.00	37.00	36.00	33.00	5.00	10.00	31.00
64	12.00	33.00	30.00	28.00	40.00	21.00	22.00	37.00	37.00	34.00	5.00	10.00	31.00
65	16.00	38.00	34.00	33.00	45.00	25.00	26.00	41.00	41.00	38.00	10.00	15.00	36.00
66	18.00	39.00	36.00	34.00	47.00	27.00	28.00	43.00	43.00	40.00	12.00	7.00	37.00
67	21.00	42.00	39.00	37.00	50.00	30.00	31.00	46.00	46.00	43.00	15.00	19.00	40.00

SOURCE: Data from the Oregon Department of Transportation, 1975 Portland-Vancouver Metropolitan Area Transportation Study.

TABLE III

SELECTED REGIONAL SHOPPING CENTERS: SALES AND GLA IN THE PORTLAND-VANCOUVER SMSA

J	Shopping Centers	GLA[1] sq. ft.	Sales in Millions of Dollars[2]
J_1	Jantzen Beach	500,000	$ 31.1**
J_2	Eastport Plaza	286,520	31.0
J_3	Mall 205	289,000	23.6
J_4	Gateway	250,000	25.8
J_5	Oregon City Shopping Center	207,930	15.6
J_6	Lloyd Center	1,600,000	104.8
J_7	Portland Downtown	2,747,000	149.5
J_8	K-Mart-Levitz	270,000	16.8**
J_9	Gresham Mall	237,605	12.1
J_{10}	Washington Square	1,100,000*	68.5**
J_{11}	Vancouver Downtown	717,000[a]	16.0
J_{12}	Tower Mall	250,000[b]	9.6
J_{13}	Beaverton Complex	NA	14.4
	Total Sales J		518.8

[1]Data from affidavit given to Oregon Land Conservation and Development Commission by John Hansen, Professor, Urban Studies Department, Portland State University: LCDC No. 75-002.

[2]Data from 1972 Census of Retail Trade.

*GLA for Washington Square received from David Leland, a local Portland Marketing Consultant.

**Sales determined by median value for shopping centers as determined by Dollars and Sense, Urban Land Institute, 1972, p. 14.

NA = Not available.

[a]Data from Downtown Vancouver: An Appraisal and Opportunity, Regional Planning Council of Clark County, 1973.

[b]Data from Clark County Consumer Attitudes Toward Shopping in Downtown Vancouver, Human Resources Planning Institute, 1973.

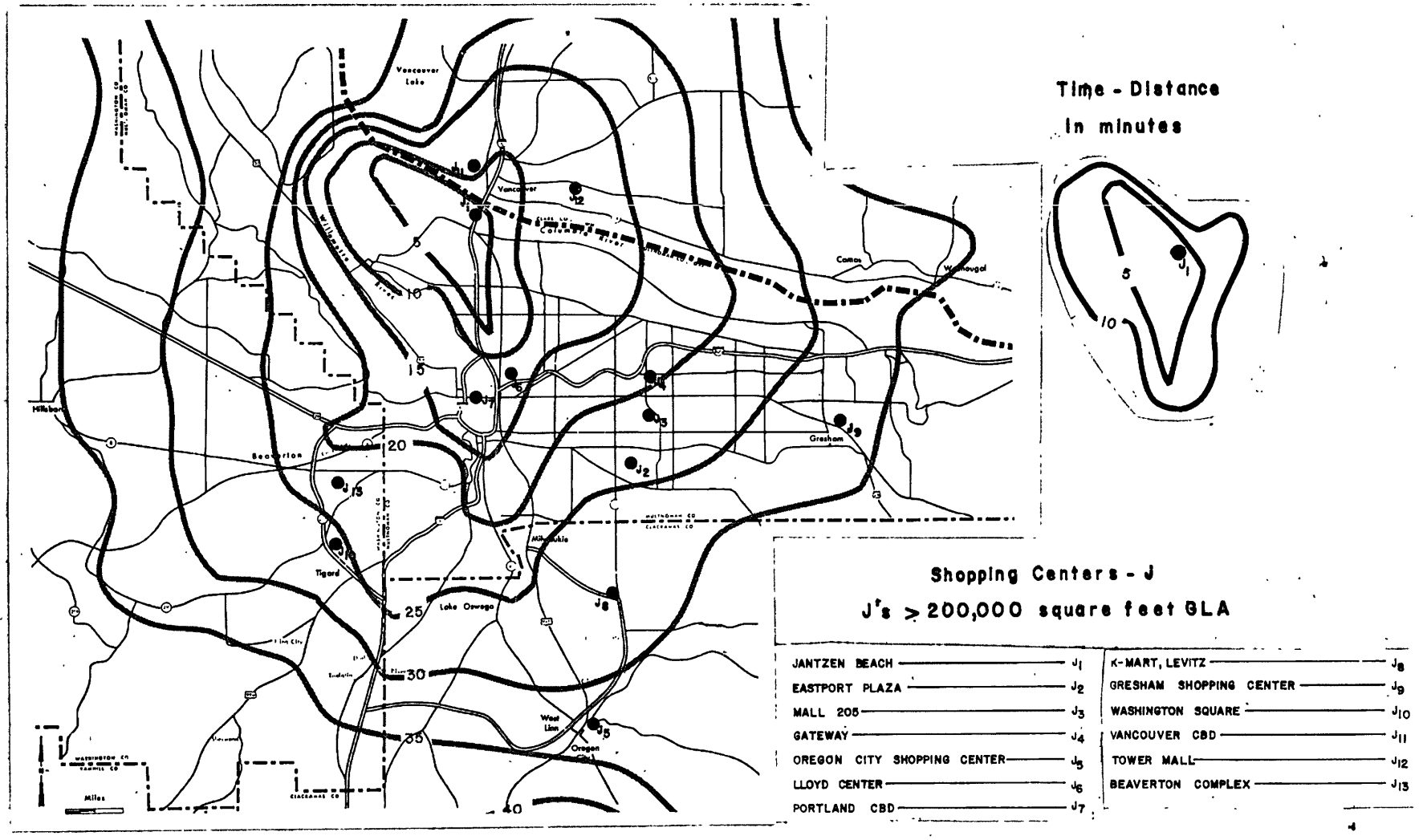


FIGURE 4

REGIONAL SHOPPING CENTERS, PORTLAND-VANCOUVER SMSA

Allocation of Shopping Expenditures. The amount allocated in the model among the thirteen shopping centers, ΣS_j, is $518.8 million, which is the sum of only their own total annual sales. Although it is apparent that these centers do not handle all the retailing expenditures made in the SMSA, it was decided to ignore the sales volumes of commercial strips along arterial streets, free-standing stores, and smaller malls. This assumes that such establishments will continue to receive a proportional amount of the total retail sales for SMSA. Also, allocating the total retail sales for the SMSA among the thirteen shopping centers would have the impact of overestimating their sales. By using their combined annual sales, one can examine the relative pulls of the shopping centers among themselves.

A problem in using only the sum of sales at shopping centers is that sales in parts of the city will be overestimated and in other areas underestimated. This is most noticeable when dealing with lower income areas because such shoppers are more constrained in their resources and are therefore more likely to shop within their own neighborhoods at discount stores rather than shopping at regional shopping centers (Berry, 1972).

Size of Market Areas. Values for C_i, potential consumer dollars for area i, were determined from 1970 Census of Population and Houses. The study area was divided into sixty-seven areas containing census tracts having similar income levels (see Figure 5). The mean income was determined for each of the sixty-seven areas. This was multiplied by the number of families in each area. As different income levels spend a different percentage of their income on items found in shopping

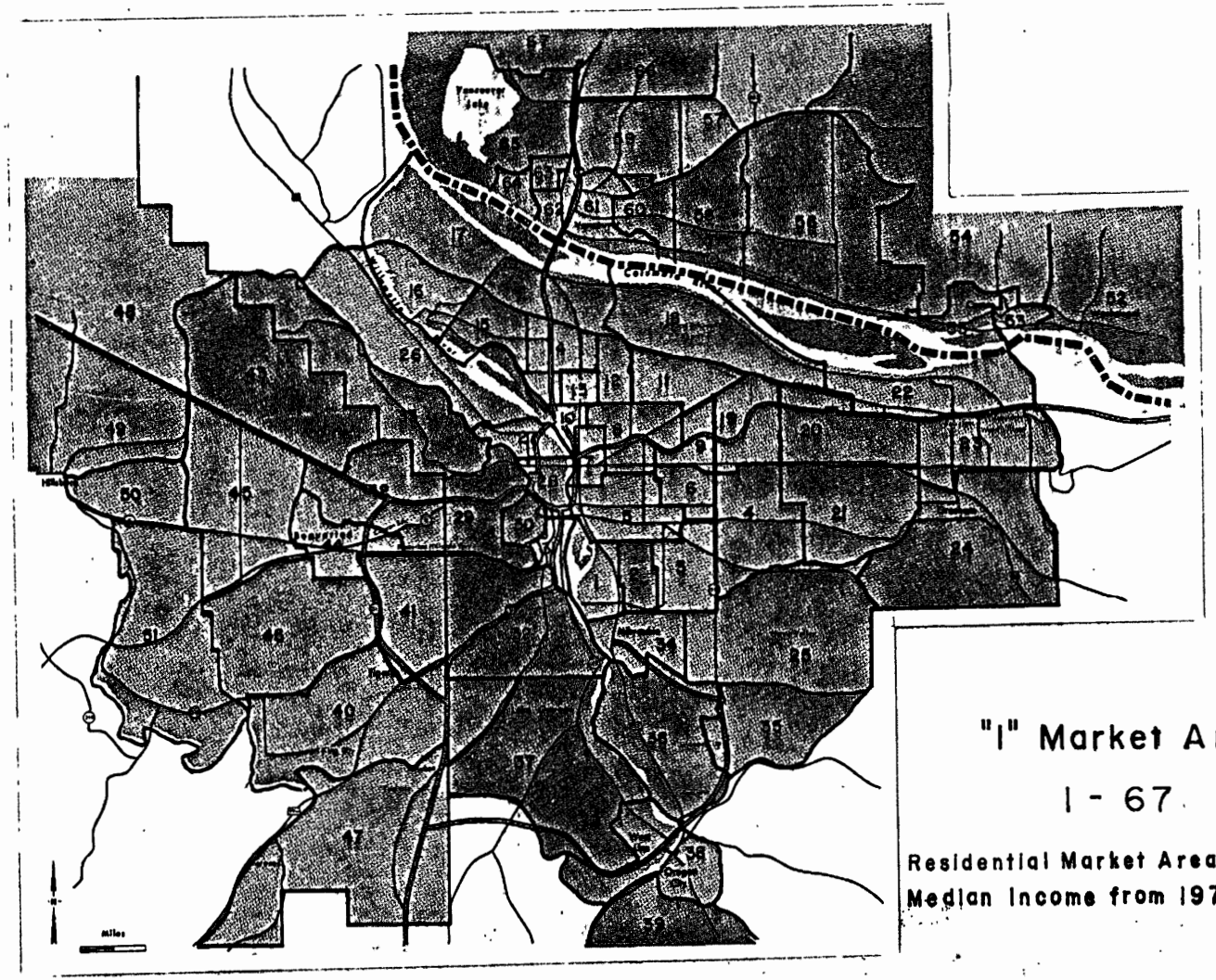


FIGURE 5

CONSUMER RESIDENTIAL AREAS, PORTLAND - VANCOUVER SMSA

centers, a method was used to approximate the different consumer expenditure patterns. From the Bureau of Labor Statistics 1972 Consumer Expenditure Survey a percentage figure for expenditures in shopping centers was determined by deducting from each income group's available funds those expenditures that definitely would not be made at a regional shopping center, including rent or house payments, utilities, medical expenses, food at home, etc. (see Table IV). This percentage was multiplied by the mean income and the number of families to determine each of the sixty-seven market sizes and their relative weighting within the model (see Table V).

$$C_i = \begin{matrix}\text{dollars spent in} \\ \text{shopping centers}\end{matrix} = \left(\begin{matrix}\%\text{ by income} \\ \text{level}\end{matrix}\right) \times \left(\begin{matrix}\text{number of} \\ \text{families}\end{matrix}\right) \times \left(\begin{matrix}\text{average} \\ \text{income}\end{matrix}\right)$$

Exponents of Distance. A range of exponents of distance (λ) from 1.5 to 5.0 were used as weights for the frictional effect of travel time in the allocation model. This range reflects maximum and minimum degrees of effort a consumer will expend in shopping for a good. The variability of the distance exponent in the model is due to differing effects of the type of good sought, the degree of substitutability for the good, and the time and expense involved in traveling to a center. Calculation of an exact value for λ was not considered essential for this study. Such calculation would require the laborious use of successive approximation solution analysis.

SIMULATION OF THE MODEL

The model predicts the market share of a Hayden Island site with 500,000 square feet GLA in each of the sixty-seven residential areas.

TABLE IV

PERCENTAGE AVAILABLE OF CONSUMER DOLLAR BY INCOME FOR PURCHASES OF SHOPPING CENTER GOODS

	Under 3,000	3,000-3,999	4,000-4,999	5,000-5,999	6,000-6,999	7,000-7,999	8,000-9,999	10,000-11,999	12,000-14,999	15,000-19,999	20,000-24,999	25,000-
Family Income Before Taxes	1,778	3,460	4,468	5,443	6,457	7,462	8,959	10,934	13,377	17,170	22,076	40,494
Food Total	(663)	(936)	(1,026)	(1,111)	(1,153)	(1,237)	(1,307)	(1,546)	(1,668)	(1,896)	(2,153)	(2,433)
-Away from Home	(-34)	(-53)	(-66)	(-85)	(-99)	(-112)	(-143)	(-181)	(-208)	(-239)	(-290)	(-443)
Total	629	883	960	1,026	1,054	1,125	1,164	1,365	1,460	1,657	1,863	1,990
Shelter	725	796	863	971	1,043	1,006	1,139	1,164	1,446	1,467	1,644	2,684
Fuel and Utilities	218	258	279	310	313	364	356	413	452	510	554	639
Housing Expenses	137	176	180	186	231	245	262	273	322	359	413	724
Laundry, Dry Cleaning	50	60	68	69	85	73	88	80	79	98	113	163
Transportation	455	616	803	967	1,061	1,289	1,469	1,712	2,004	2,269	2,620	2,792
Health Care	208	300	343	363	420	406	484	470	520	574	630	853
Total Recreation	(144)	(227)	(300)	(339)	(345)	(421)	(523)	(532)	(724)	(947)	(1,288)	(1,943)
- Other Rec.	(-81)	(-122)	(-132)	(-200)	(-184)	(-198)	(-244)	(-250)	(-333)	(-396)	(-526)	(-723)
Total	63	105	168	139	161	223	279	282	391	551	762	1,220
Education	13	7	16	13	27	39	46	68	82	158	277	534
Personal Insurance Pensions	218	249	297	327	384	457	566	756	917	1,152	1,466	2,265
Total Expense Not Spent In Shopping Centers	2,716	3,450	3,977	4,371	4,779	5,227	5,853	6,583	7,673	8,795	10,341	13,864
% Consumer Dollar Possible for Shopping Centers	0%	.03%	11%	20%	26%	30%	35%	40%	43%	49%	53%	65%

TABLE V

PRECENTAGE INCOME AVAILABLE FOR CONSUMER SHOPPING BY RESIDENTIAL AREA

Area	No. of Families	Average Income	Percentage of Income Spent in Shopping Centers	Market Size In $ Millions
1	3,304	$ 9,765	35%	11.29
2	2,953	15,153	49	21.93
3	8,431	9,392	35	27.71
4	10,303	10,112	40	41.67
5	11,470	9,889	35	40.05
6	4,648	11,860	40	22.05
7	1,923	8,490	35	5.71
8	10,927	12,595	43	59.18
9	4,671	10,364	40	19.36
10	798	6,221	26	1.29
11	6,843	10,802	40	29.57
12	4,477	10,835	40	19.40
13	2,949	7,398	30	6.55
14	6,746	9,341	35	22.06
15	5,353	11,222	40	24.03
16	3,433	9,451	35	11.36
17	755	11,613	40	3.51
18	581	11,330	40	2.63
19	5,675	11,392	40	25.86
20	7,212	13,445	43	41.70
21	7,308	11,309	40	33.06
22	241	10,601	40	1.02
23	1,714	11,214	40	7.69
24	3,453	11,827	40	1.63
25	4,349	11,145	40	19.39
26	321	11,322	40	1.45
27	2,533	8,620	35	7.64
28	1,450	12,123	43	7.56
29	3,936	23,798	53	49.64
30	1,324	21,084	53	14.80
31	973	10,983	40	4.27
32	8,834	17,899	49	77.48
33	504	19.719	49	4.87
34	4,715	11,961	40	22.56
35	1,819	10,776	40	7.84

TABLE V--Continued

Area	No. of Families	Average Income	Percentage of Income Spent in Shopping Centers	Market Size In $ Millions
36	8,022	$12,175	43%	$42.00
37	5,884	17,305	49	49.89
38	2,974	10,674	40	12.70
39	738	10,286	40	3.04
40	4,733	13,107	43	26.68
41	5,090	14,206	43	31.10
42	7,103	16,664	49	58.00
43	2,380	15,960	49	18.61
44	3,309	11,232	40	14.87
45	2,692	11,905	40	12.82
46	2,848	12,847	43	15.73
47	1,384	10,477	40	5.80
48	637	11,149	40	2.84
49	2,173	12,289	43	11.48
50	1,968	11,677	40	9.19
51	553	11.255	40	2.49
52	1,773	10,114	40	7.17
53	638	10,711	40	2.73
54	1,084	10,724	40	4.65
55	839	10,895	40	3.66
56	1,512	11,723	40	7.09
57	2,176	9,829	35	7.49
58	4,382	12,550	43	23.65
59	2,473	11,324	40	11.20
60	2,357	13,485	43	13.67
61	2,695	8,723	35	8.23
62	1,843	8,583	35	5.54
63	1,175	11,544	40	5.43
64	460	8,378	35	1.35
65	2,521	13,379	43	14.50
66	1,534	11,282	40	6.92
67	1,714	12,404	43	9.14

(See Appendix I for detailed computer printout.) Dollars are in 1972 values because of the use of 1972 Census of Retail Trade data. Since the prediction is based on past situation and no future predictions are being put into the model, the criteria for population growth rates, changes in travel time but not travel behavior, and expansion criteria in shopping centers are not considered. Varying treatments of travel behavior are incorporated by using different exponents of distance lying between 1.5 and 5.0. The results of the model should be representative of the effects of competition and travel time on market share. It is important to realize that the model is only able to evaluate a site location in relationship to competition from other retail locations and the size of market areas. Thus attractiveness, an intangible variable, is not taken into consideration in the simulation and neither are other variables such as effects of political boundaries or managerial abilities considered in the model.

Figures 6, 7, 8, 9, and 10 show share of market under varying treatments of travel behavior. The market share per area is in the percentage of the consumer dollar available that is to be spent at Jantzen Beach. However, because total consumer dollars were not used but rather only shopping center sales dollars (S_j) were allocated, the results must be viewed as showing relative pull of Jantzen Beach Shopping Center in relationship to competition from other regional shopping centers.

Figure 6 is for a distance exponent of 1.5 which assumes a high degree of mobility and little constraint of travel time on comparison shopping. Consumers can be expected to be drawn from all over the SMSA. At the other extreme, Figure 10 uses a distance exponent of 5.0 which

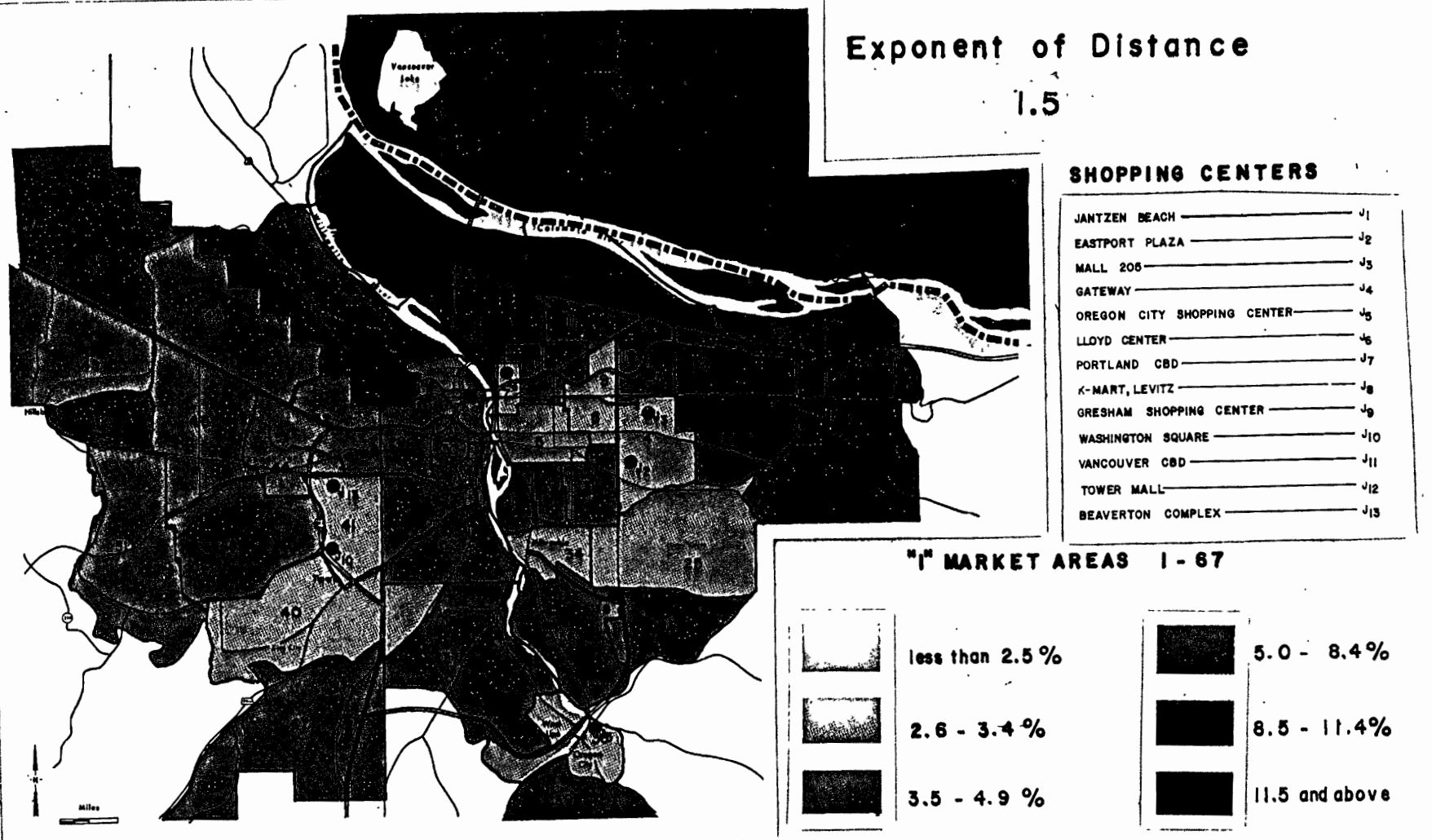
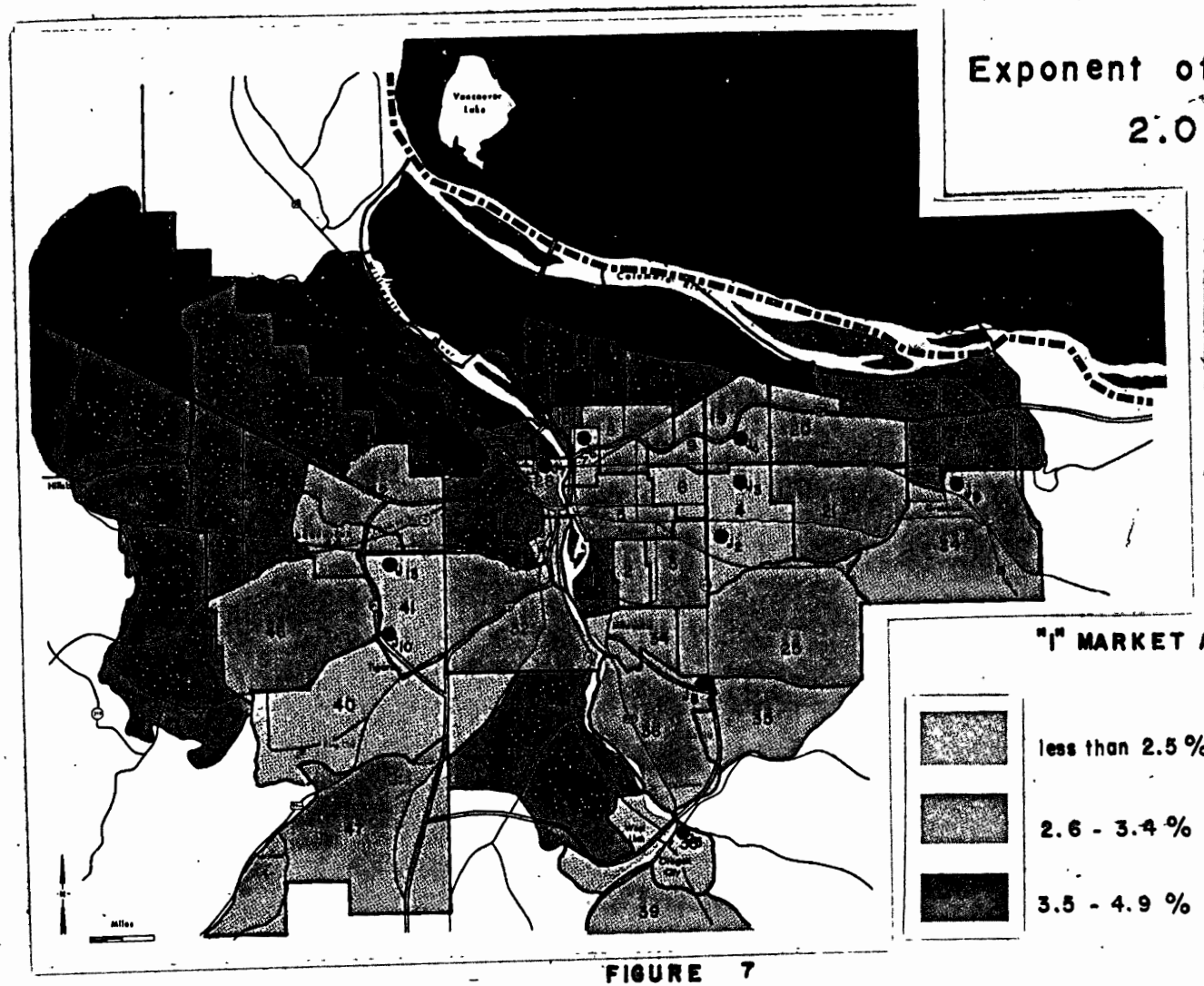


FIGURE 6

JANTZEN BEACH, PREDICTED SHARE OF THE MARKET, In %



Exponent of Distance

2.0

SHOPPING CENTERS

JANTZEN BEACH	J_1
EASTPORT PLAZA	J_2
MALL 205	J_3
GATEWAY	J_4
OREGON CITY SHOPPING CENTER	J_5
LLOYD CENTER	J_6
PORTLAND CBD	J_7
K-MART, LEVITZ	J_8
GRESHAM SHOPPING CENTER	J_9
WASHINGTON SQUARE	J_{10}
VANCOUVER CBD	J_{11}
TOWER MALL	J_{12}
BEAVERTON COMPLEX	J_{13}

"I" MARKET AREAS 1 - 67

	less than 2.5 %		5.0 - 8.4 %
	2.6 - 3.4 %		8.5 - 11.4 %
	3.5 - 4.9 %		11.5 and above

FIGURE 7

JANTZEN BEACH, PREDICTED SHARE OF THE MARKET, In %

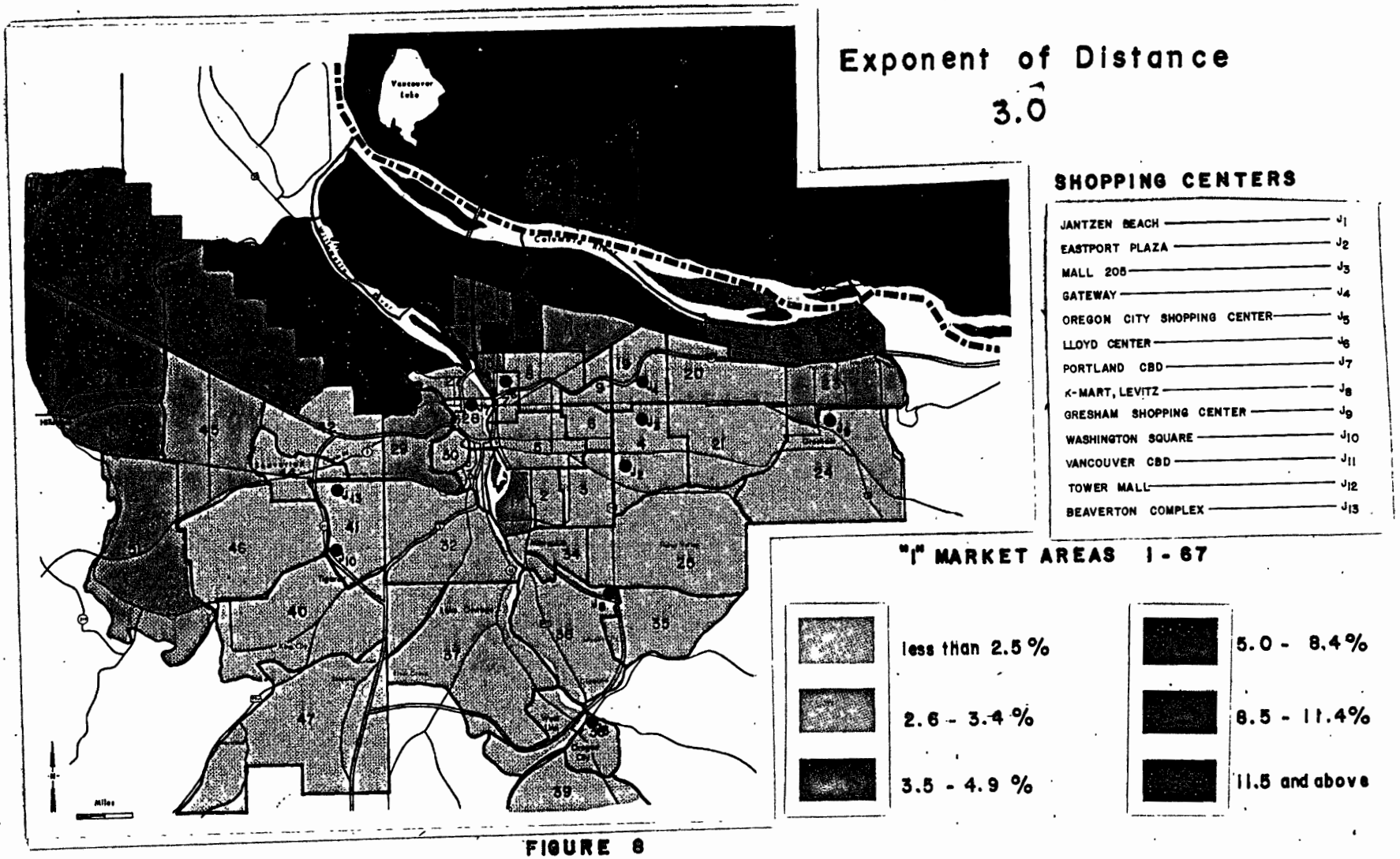


FIGURE 8

JANTZEN BEACH, PREDICTED SHARE OF THE MARKET, In %

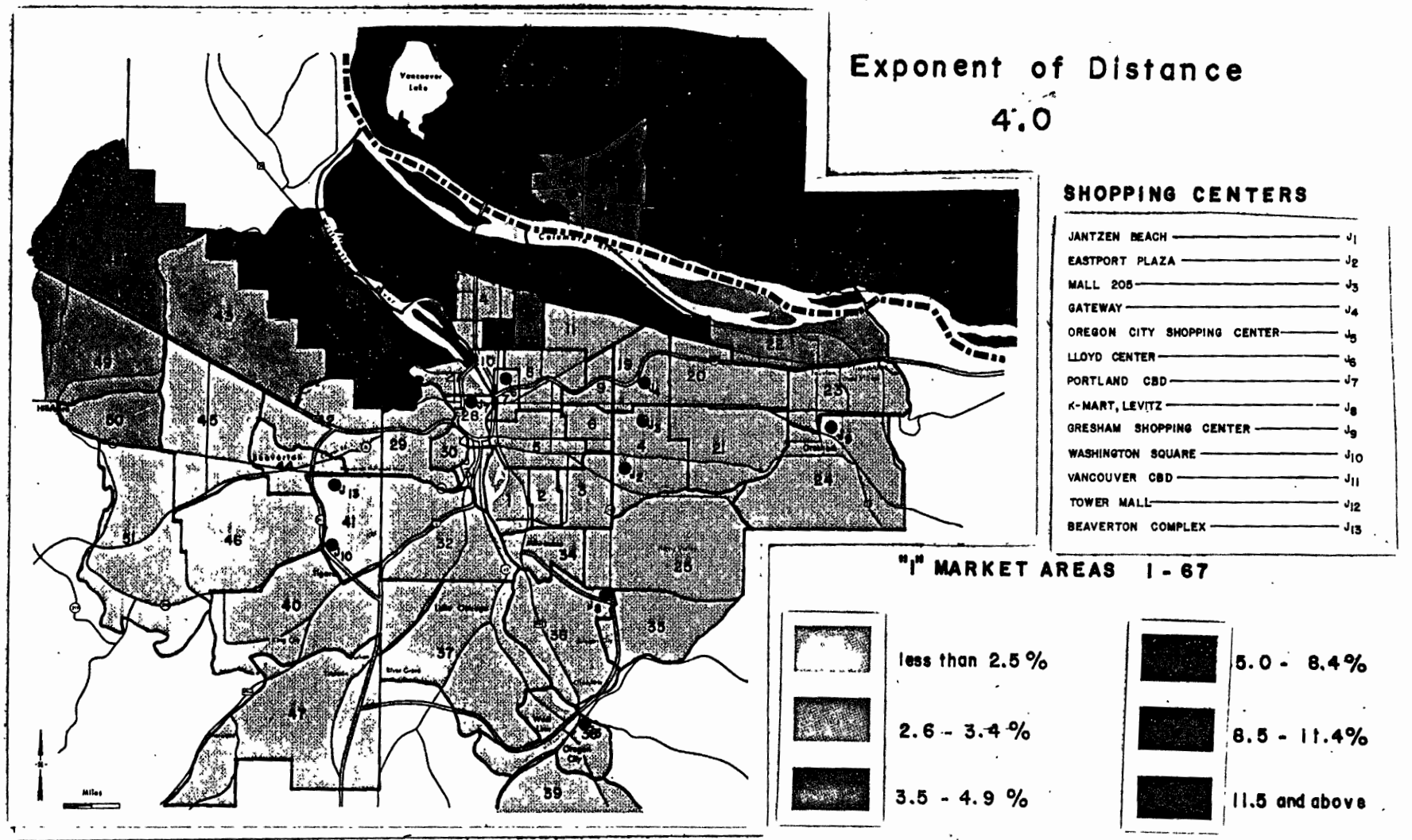


FIGURE 9

JANTZEN BEACH, PREDICTED SHARE OF THE MARKET, In %

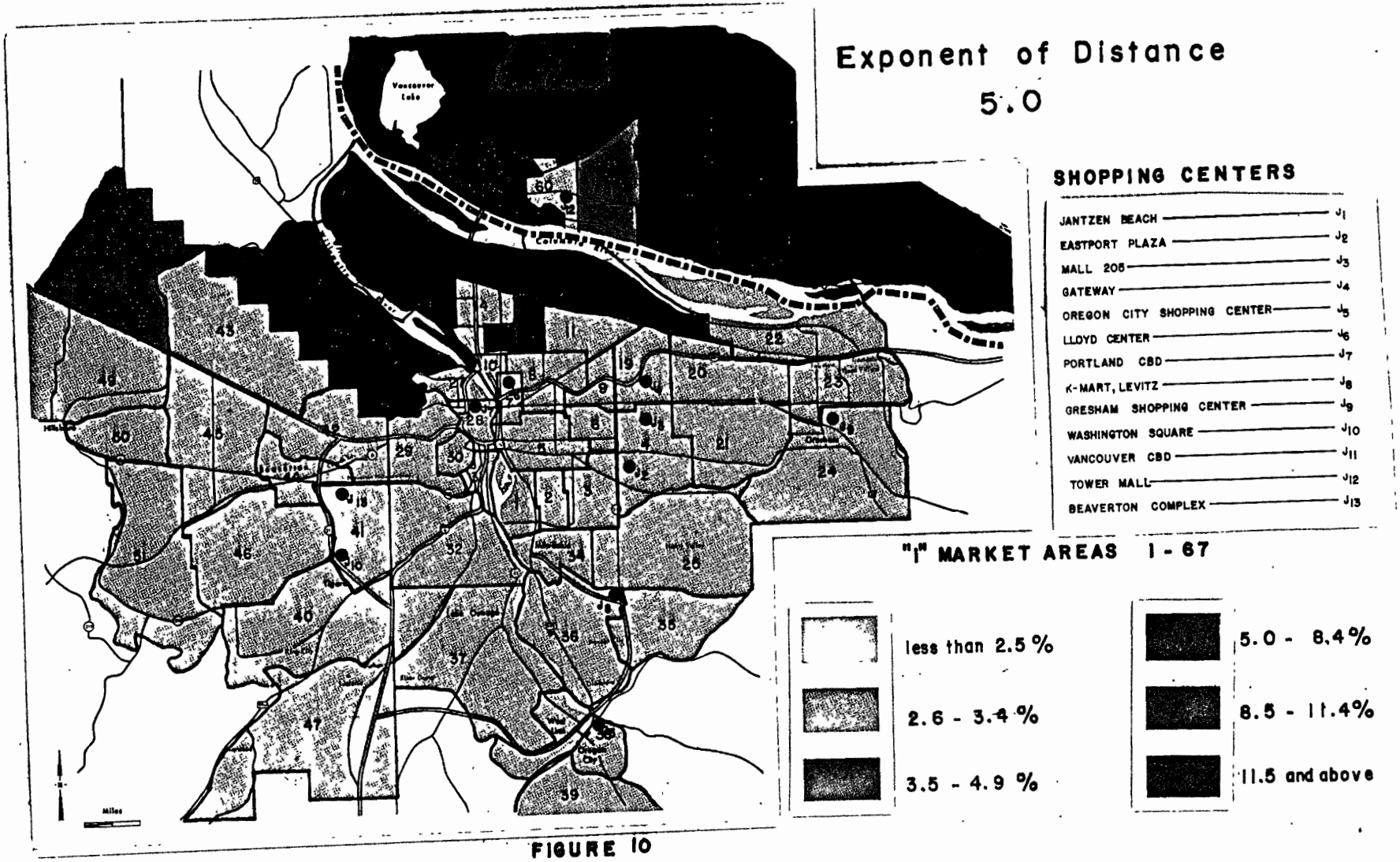


FIGURE 10

JANTZEN BEACH, PREDICTED SHARE OF THE MARKET, In %

signifies a highly constrained mobility. Consumers will probably shop selectively, and little comparison shopping will occur. If the current energy shortage continues and travel costs become more expensive, perhaps this more highly constrained pattern could occur. Figures 7, 8, and 9 represent intermediate exponents. Comparison among the five maps shows a marked contrast, as local retailing monopolies develop with an increase in travel costs.

Figure 6 with a distance exponent 1.5 shows consumers traveling from the entire SMSA to shop at Jantzen Beach. It is interesting to note that areas with the other shopping centers show less percentage of potential consumers. Area 13 is shown as higher than area 14 although it is closer. This occurs due to calculations of travel time from a point off center in area 14.

A distance exponent of 2.0 (Figure 7) shows the start of locational monopolies occurring around the Lloyd Center and a greater amount of Vancouver residents are spending a larger proportion of their shopping dollar at a Hayden Island site.

Most of southwest, southeast, and northeast Portland drop out from shopping at Jantzen Beach with a distance exponent of 3.0 (Figure 8). The market area becomes more oriented to Clark County residents and areas of little population.

With higher constraints on travel (Figure 9), areas around the Tower Mall in Vancouver lower their percentage of shopping at Jantzen Beach. With 5.0 exponent of distance (Figure 10), which means that travel is highly constrained, Clark County areas where the population

resides decrease their patronage. A 5.0 exponent level is extremely high and is not expected to occur in reality.

Table VI shows predicted percentage share of the market under different constraints on travel behavior.

TABLE VI

PROJECTED SHARE OF THE MARKET--JANTZEN BEACH

Distance Exponent	% Total Market, 1972
1.5	5.0
2.0	4.7
2.5	4.5
3.0	4.2
3.5	4.0
4.0	3.8
4.5	3.7
5.0	3.5

Based on relative floor space alone, Jantzen Beach, a center of 500,000 square feet, would be expected to pull approximately 6 percent of the market or $31.1 million (see Table III). However, the model predicts that Jantzen Beach would only draw from 3.5 percent to 5.0 percent of the total shopping dollar. In retail sales, a range from $18.54 million to $26.12 million is predicted. The expected $31.1 million for the size of the shopping center is not reached according to the model due to the effect of competing shopping centers and lack of population (see Table VII).

It is interesting to note that for Jantzen Beach Shopping Center, an increase of the distance exponent in the model caused a marked decrease in estimated shares. However, for many of the shopping centers,

TABLE VII

ESTIMATED SALES, JANTZEN BEACH

Distance Exponent	1972 Dollars in Millions
1.5	$26.12
2.0	24.59
2.5	23.19
3.0	21.93
3.5	20.83
4.0	19.89
4.5	19.13
5.0	18.54

an increase of the distance exponent actually increased sales. For example, predicted sales for Eastport Plaza, J_2, with a distance of 1.5, was $35.25 million, which increased to $45.85 million with a distance exponent of 5.0.

Table VIII indicates some interesting consequences of the impact of increased cost on travel behavior. For Jantzen Beach, with a highly mobile consumer (1.5 to 2.0), the majority of consumer dollars would come from twenty to thirty minutes away, whereas as the exponents of distance increase, the majority of consumer dollars is predicted to come from the ten- to fifteen-minute range. Few consumer dollars are available in the first five minutes.

Table IX, Locational Efficiency, reveals that under all conditions of travel behavior, a site at Hayden Island (Jantzen Beach) does not approach 100 percent locational efficiency. Even under a highly mobile populace, locational efficiency is only equal to 84 percent. With a 5.0 distance exponent it is equal to 60 percent. This indicates that

TABLE VIII

ESTIMATED SALES FOR JANTZEN BEACH BY TIME-DISTANCE
(MILLIONS OF 1972 DOLLARS)

Minutes from Jantzen Beach	Exponents of Distance							
	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
5	$ .27	$ .35	$ .45	$ .56	$ .68	$ .79	$ .90	$ .01
10	2.40	2.96	3.58	4.26	4.99	5.75	6.54	7.33
15	4.56	4.64	4.57	4.34	3.98	3.55	3.09	2.64
20	4.79	4.54	4.26	3.94	3.56	3.16	2.77	2.40
25	7.04	6.16	5.38	4.71	4.14	3.67	3.27	2.92
30	4.85	4.01	3.28	2.65	2.15	1.74	1.43	1.19
35	1.89	1.69	1.51	1.37	1.26	1.17	1.10	1.04
40	.27	.20	.14	.09	.06	.04	.03	.02
45	.05	.04	.03	.02	.02	.01	.01	.00
Total	$26.12	$24.59	$23.19	$21.94	$20.83	$19.89	$19.13	$18.54

it is, according to this model, in a suboptimal location and is off center to the major market (residential) areas. Because of the expected lack of population growth in nearby areas due to the industrial development and Delta Park, it is expected that the center would not be able to increase its locational efficiency by the criteria of the model.

TABLE IX

LOCATIONAL EFFICIENCY--JANTZEN BEACH

Distance Exponent	1972
1.5	84%
2.0	79%
2.5	75%
3.0	70%
3.5	67%
4.0	64%
4.5	62%
5.0	60%

COMPARISON OF SUCCESS PROBABILITIES OF A HAYDEN ISLAND SITE WITH THE ACTUAL PERFORMANCE OF JANTZEN BEACH SHOPPING CENTER

A comparison between the predicted locational efficiency and that which is present at Jantzen Beach is startling. Peter Van Dyke, President of Jantzen Beach, Inc., stated that as of December, 1976, Jantzen Beach Shopping Center was earning $119.00 per square foot sales or approximately $60 million. Translating to 1972 dollars so that consistency with the allocation model can be maintained, locational efficiency measured by actual sales in relation to square footage for Jantzen Beach was 139.7 percent of national averages for comparably-sized shopping centers as determined by the Urban Land Institute.

$$\begin{matrix}\text{1972 Dollar Value with} \\ \text{1967 Base of 100} \\ \text{1977 Dollar Value} \\ \text{1967 Base}\end{matrix} \quad \frac{127.3}{174.3} \times \$119.00 \text{ per square foot} = \$86.91$$

$$\begin{matrix}\text{Locational} \\ \text{Efficiency}\end{matrix} = \frac{\$86.91 \text{ per sq. ft.} \times 500{,}000 \text{ sq. ft.}}{\$31.1 \text{ million}} \times 100 = 139.7\%$$

The allocation model of Huff predicted only an 84 percent locational efficiency, so that actual performance is actually 165 percent of what would be predicted by considerations of population, center size, and travel times.

Another confirmation of the success of Jantzen Beach Shopping Center is the traffic generated by the center. If the center is performing successfully, it should be comparable in traffic generation to the national average. In this regard, Carl Buttke notes the following:

> The primary mode of transportation to regional shopping centers has been the private automobile, with over 95% of the shoppers

> arriving this way. Walking, bus and taxi have represented less than 5% of the total shopping trips. Shopping center vehicle trip generation has been found to vary with the type and size of the center. Average daily vehicle trip generation for centers of regional character, having over 80% of its developed building area devoted to the handling and sale of shopping goods and over 500,000 square feet of gross leasable area has been found to vary between 36 and 56 trip-ends per 1,000 square feet of gross leasable area. In other words, these regional centers attract between 18 and 28 vehicles per average day per 1,000 square feet of gross leasable area (Buttke, 1972).

Buttke cites his own measurements of approximately 14,800 two-way vehicle trips entering and exiting Jantzen Beach on an April day in 1975. Due to fluctuations in weekly and monthly traffic, "it was determined that this center, on the average, generates approximately 40 two-way vehicle trips per 1,000 G.S.F. of leasable floor area and is typical to the national average" (Buttke, 1975).

Jantzen Beach Shopping Center is thus surpassing the median value of dollars/sales per square foot for the national average and is comparable to similar centers in generation of vehicular trips. Moreover, it is continuing to expand. Sales have grown steadily at 15 to 20 percent annually (Peter Van Dyke, Interview). Expansion has been continuous. When first opened the center had thirty-six stores. Presently there are eighty-four stores and with the additional 200,000 square feet expected to open in the fall of 1977, the number of stores is expected to increase to 120 (Oregonian, 20 April 1977, p. B11).

CHAPTER IV

THE ROLE THE STATE BOUNDARY PLAYS ON THE SUCCESS OF JANTZEN BEACH SHOPPING CENTER

The success of Jantzen Beach Shopping Center is far above expectations, considering its immediate population density, competition, and other criteria used in shopping center location. Its success would appear to be related to functions of the state boundary between Oregon and Washington.

A political boundary will have both operational and psychological effects on the inhabitants within the border area. In this specific case, the boundary separates regions having differing means of taxation. The existence of a 5 percent sales tax in Washington appears to encourage Washington residents to shop for goods in Oregon which does not have a sales tax. Jantzen Beach Shopping Center has the fortunate position of being the first shopping center encountered when entering Oregon from Washington on Interstate 5. Its proximity to Washington and distance from its main competing centers in Oregon--Lloyd Center and Portland Downtown (approximately fifteen minutes)--cuts travel time in half for Washington residents. Thus it is able to intercept customers by providing an intervening opportunity.

Its location in Oregon appears to have a major influence on its success. Roger Martin, CCIM, in an interview, stated that Jantzen Beach's "unique drawing card is that a four- or five-minute drive

escapes a sales tax." Whether the extra time involved is worth it becomes a value judgment but the psychological aspects of saving on the sales tax plays a part. "Sales tax is definitely the reason" as far as he is concerned for the success of Jantzen Beach Shopping Center. Another aspect of the effect of the sales tax is that with inflation rising as fast as it has, real income for most families has decreased and "in today's family economy, the sales tax is a determining factor" (Gaunt, 1974, 22).

The fact that the state boundary is the Columbia River also appears to have an impact on circulation patterns in the Portland-Vancouver SMSA. The river has traditionally been a barrier to mobility between Portland and Vancouver. The present existence of only one bridge crossing in each direction has hindered traffic flow between the two cities and has created a bottleneck for traffic during the rush hours or whenever accidents occur on the bridge. However, it has had the benefit for Jantzen Beach of focusing traffic flow over Hayden Island. However, because of these limitations on circulation, it is my impression that for most Oregonians Vancouver is further away from Portland than Portland is from Clark County residents.

In order to determine the importance of the political boundary in making Jantzen Beach such a successful shopping center, a survey was taken using a questionnaire designed to locate residences, travel times, origin of trips, shopping frequency, patronage of other shopping centers, and reasons for shopping at Jantzen Beach Shopping Center by its customers.

SURVEY OF JANTZEN BEACH CUSTOMERS

The questionnaire was designed to elicit straightforward answers concerning the customer's shopping behavior (see Appendix II). Therefore, concise questions were asked which had all possible answers within them. Subjects were requested to respond to questions read to them from an interview questionnaire while being able to read the questionnaire at the same time.

Originally Eastport Plaza was selected for the pre-test because of the similarity of the two centers, each being enclosed malls catering to consumers arriving by automobiles. However, consumer surveys were not allowed at Eastport Plaza. Therefore, Portland Downtown was selected for the pre-test for testing proper and natural wording of the questionnaire. Due to the nature of the CBD shopper, difficulties were experienced in obtaining interviews, and applicability of some of the questions. However, experience in approaching customers and interviewing was gained.

Permission was obtained from Jantzen Beach, Incorporated to interview approximately one hundred of its customers during the week March 20-26, 1977. Because of Jantzen Beach's standing policy of not allowing harrassment of the customers, i.e., consumer surveys, it was fortunate to be allowed to interview at all. Data were obtained by randomly interviewing shoppers. Interviews were conducted during three time periods: Tuesday, March 22, 1977, 11:30 A.M. to 2:30 P.M.; Thursday, March 24, 1977, 4:30 P.M. to 7:00 P.M.; and Saturday, March 26, 1977, 12:00 noon to 3:00 P.M. This was done in order not to focus exclusively on a particular type of class of shopper. Customers were questioned

individually by two interviewers working together. This was done for two reasons: (1) moral support and encouragement, and (2) holding the map to determine the residential area in which the consumer lived.

The analysis of data was done by Chi Square contingency tables when comparing Question 1 with 8, 3 with 8, 4 with 8, and 6 with 8 (see Appendix II). Question 2 uses a weighted ranking. Question 8 was used as an independent variable in all comparisons because of its ability to separate populations into two distinct categories (Portland and Vancouver). In all Chi Square computations, an alpha level of .05 was used as the standard value.

RESULTS OF THE SURVEY

A total of 113 interviews were completed during the three days selected. There were 26 percent from the Oregon part of the SMSA, 55 percent were from the Clark County, Washington part of the SMSA, and 19 percent were from outlying areas (Montana, New Jersey, Klamath Falls, Seattle, etc.). This seems like a relatively high figure for the outlying area, because usually 90 percent of sales are to customers within the first seven miles from a regional shopping center (Baker Interview). However, conferences at the motel on Hayden Island and visibility from the Interstate 5 freeway help to account for this figure. School vacation may also have had some effect on this proportion. See Table X and Figure 11 for residences of local population.

That data were comparable with those of surveys done earlier by Jantzen Beach, Incorporated, in 1975 and 1976 (see Table XI). Their

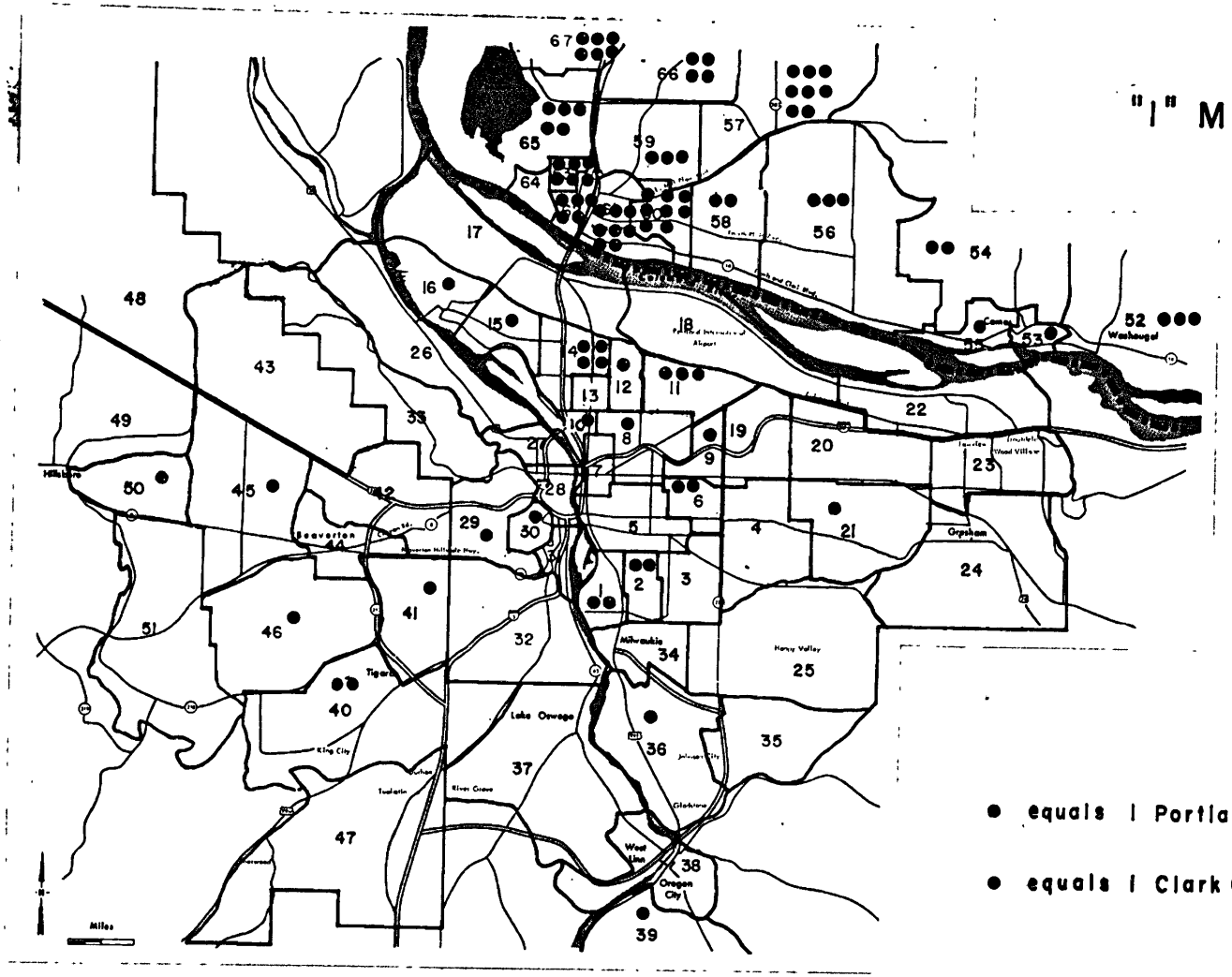


FIGURE 11

RESIDENCES OF SHOPPERS AT JANTZEN BEACH SHOPPING CENTER

TABLE X

PLACE OF RESIDENCE OF JANTZEN BEACH CUSTOMERS

Day	Portland	Vancouver	Outlying	Total
Tuesday	7	21	5	33
Thursday	9	26	6	41
Saturday	14	16	9	39
TOTAL	30	63	20	113
Percent	26%	55%	19%	100%

sample populations were much larger, 433 and 522, but results were similar when comparing theirs with this survey's more generalized place of origin.

TABLE XI

STATE OF RESIDENCE OF JANTZEN BEACH CUSTOMERS

Jantzen Beach Surveys						This Survey		
1975			1976			1977		
Oregon	Washington	Other	Oregon	Washington	Other	Oregon	Washington	Other
40%	59%	1%	36%	63%	1%	34%	63%	3%

Responses from persons from outlying areas were discarded in analyzing data, leaving ninety-three usable questionnaires.

Comparisons of where subjects were coming from (home, work, or other) were made by separating the populations between those from Portland and from Vancouver. The category of "work/other" was initially separated, but had to be combined because of an inadequate number of responses (less than five for the work category), and small relative frequencies for the work category occurring in the Portland population.

No distinction was found to exist between Portland and Vancouver residents concerning whether they were coming from "home" or "work/other."

Inquiry into reasons why various shoppers patronize Jantzen Beach was also undertaken. Shoppers were asked to rank their reasons from 1 to 3 from a selection of possible responses for their reasons for shopping. Weighted rankings are presented in Table XII.

TABLE XII

WEIGHTED RANKINGS OF REASONS FOR SHOPPING AT JANTZEN BEACH SHOPPING CENTER

Rank	Large Selection	No Sales Taxes	Close to Work	Specialty Shops	Close to Home	Other	Recreation	Special Sales
				Portland				
1	3		5	3	5	10	0	4
2	3				4	6	2	2
3				1		1	1	2
Weighted Rank	15	Not Ranked	15	10	23	43	5	17
				Vancouver				
1	20	4	5	2	22	6		4
2	13	11	1	3	5	8	2	2
3		6	2		3	8	1	2
Weighted Rank	86	40	19	12	79	42	5	20

The results as presented by median ranking in Table XII showed that Portland shoppers shopped for the following reasons, ranked in order of importance:

1. Other reasons
2. Close to home

3. Special sales
4. Closeness to work (they worked at Jantzen Beach) and large selection (these rankings were tied)
5. Specialty shops
6. Recreation

Vancouver shoppers shopped for the following reasons (in order of importance):

1. Large selection
2. Close to home
3. Other
4. No sales tax
5. Special sales
6. Close to work
7. Specialty shops
8. Recreation

The overall results of the ranking shows that Portland and Vancouver shoppers shop at Jantzen Beach for different reasons. Above all, Vancouver shoppers do not appear to believe that they shop at Jantzen Beach explicitly to avoid the Washington State sales tax. However, it appears to be a secondary and contributing factor.

In a comparison of Portland area residents versus Vancouver area residents regarding how often a subject shopped at Jantzen Beach, a relationship was found to exist when using "weekly," "monthly," and "less often" as the dependent variables. This occurred, however, after combining some of the initial categories due to inadequate frequencies in some cells in the Portland population. In fact, the relationship

extended to a probability of .005, suggesting that there was little likelihood of making an alpha error.

A Chi Square analysis was used to test the hypothesis that there is no difference between the two populations. It appears that Vancouver shoppers differ significantly in their shopping frequency at Jantzen Beach.

Shopping frequency in general was also compared in a Portland-versus-Vancouver manner. There was no relationship found to exist in shopping frequencies between Portland and Vancouver. Again, however, certain categories had to be combined because too few frequencies existed for some categories of the Portland population.

A comparison of these two categories, "shopping frequency at Jantzen Beach" and "frequency of shopping in general," suggests that Vancouver shoppers frequent Jantzen Beach Shopping Center more often than Portland shoppers, but that for frequency of shopping in general, Portland and Vancouver residents are not significantly different.

In Question 5 on the interview questionnaire, shoppers were asked to tell which three shopping centers in the Portland/Vancouver area they frequented most (Figure 12). A list of large shopping centers was then offered. However, not all shoppers responded with three choices, so percentages of frequencies were computed by using the total number of cited shopping centers rather than the total number of shoppers. The following four comparison (in order of importance) represent the findings in general. Vancouver residents mentioned Jantzen Beach 41.6 percent of the time while Portlanders did so only 18.3 percent. Vancouver shoppers noted Lloyd Center 24.1 percent compared to Portland's 25

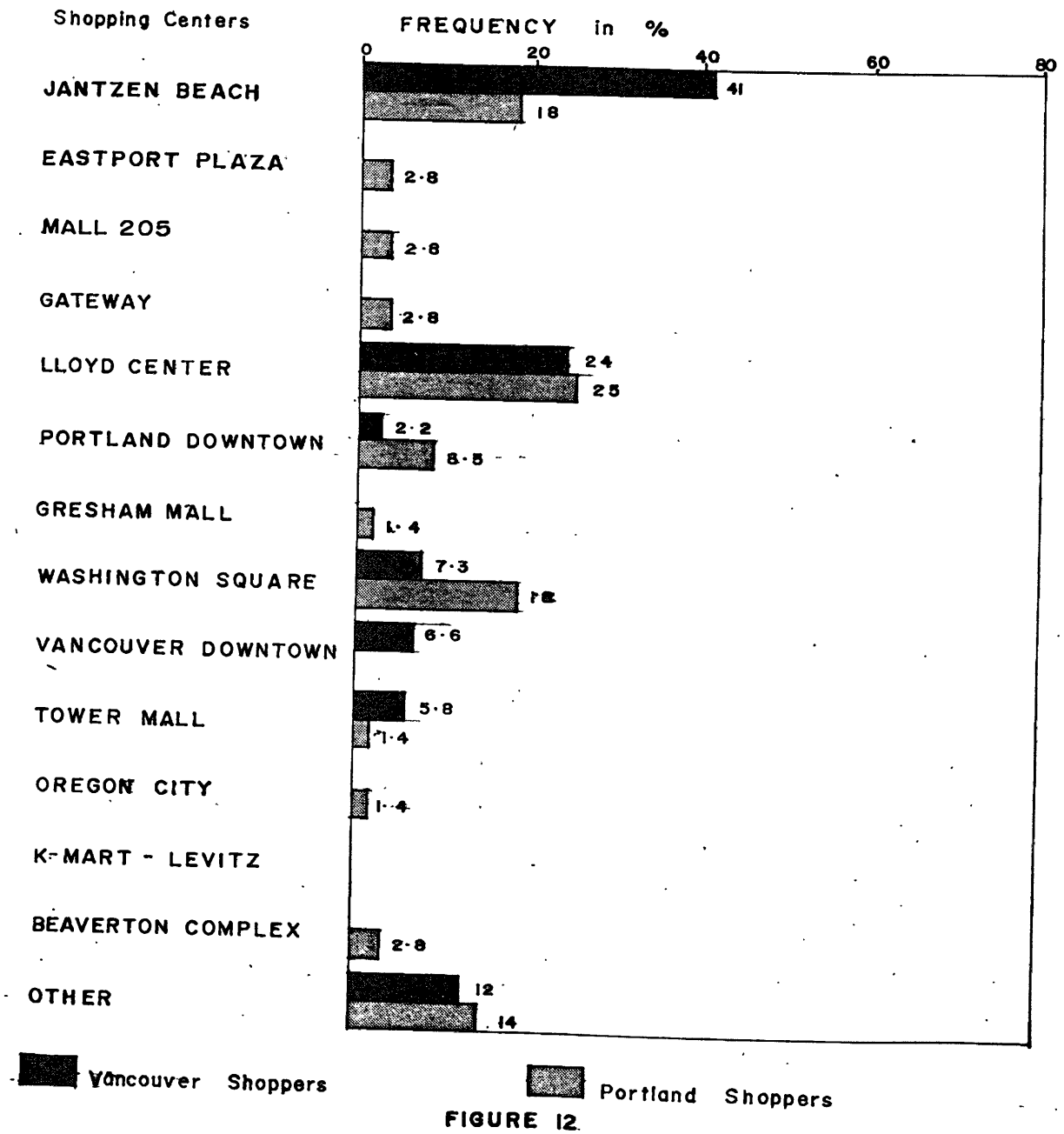


FIGURE 12

FREQUENCY OF SHOPPING CENTERS CITED FROM CUSTOMER SURVEY, 1977

percent. Vancouver shoppers cited Washington Square 7.3 percent, while Portland shoppers mentioned it 18.3 percent. Other shopping centers, including K-Mart (Vancouver), G.I. Joe's, and various Fred Meyer stores, were identified 12.4 percent by Vancouver subjects and 14.1 percent by Portland subjects.

Subjects were asked to look at a map and give the number from the group of sixty-seven areas that included where he lived. Travel times to Jantzen Beach were calculated from the PVMATS data. It was found that for Vancouver residents, 11 percent lived 1-10 minutes away from Jantzen Beach, while 51 percent lived 11-20 minutes away, and 35 percent lived 21-30 minutes away. For Portland area residents, 30 percent lived 1-10 minutes away, 23 percent lived 11-20 minutes away, and 37 percent lived 21-30 minutes away.

As the customer survey indicated, the majority of shoppers patronizing Jantzen Beach Shopping Center are Clark County, Washington, residents. Their reasons--closeness to home and large selection--become extremely important when considering the effects of a political boundary running through a metropolitan area. The success of Jantzen Beach Shopping Center thus appears to rest upon economic effects of a political boundary. The primary reason that Clark County residents shop at Jantzen Beach is because of the lack of large selection for comparison goods (those found in regional shopping centers) in Clark County (Smith, 1972). The question then becomes: why hasn't there been any large shopping center development in southern Washington prior to this time?

THE IMPACT OF THE STATE BOUNDARY ON THE DEVELOPMENT OF CLARK COUNTY

Vancouver is part of a four-county metropolitan region consisting of Multnomah County, Clackamas County, Washington County, Oregon; and Clark County, Washington. In 1970, Clark County contained 12.7 percent of the SMSA's total population. Between 1960 and 1970, its population increased 37 percent from 98,800 to 128,400 people. Table XIII indicates that Clark County has been growing faster than the metropolitan area as a whole. It has increased from 11.4 percent in 1960 to 12.7 percent in 1970 of the total SMSA population. Approximately 70 percent of the population resides in the southern part of the county within five miles from the Columbia River (Smith, 1972).

TABLE XIII

POPULATION TRENDS: CLARK COUNTY-PORTLAND-VANCOUVER SMSA

Year	Clark Co. (in 000's)	% Increase	SMSA (in 000's)	% Increase	% Clark Co. of SMA
1910	26.1		303.8		8.65%
1920	32.8	25.67%	372.8	22.71%	8.8
1930	40.3	22.86	455.0	22.04	8.8
1940	49.9	23.82	501.3	10.17	9.9
1950	85.3	70.94	704.8	40.59	12.1
1960	93.8	9.96	821.9	16.61	11.4
1970	128.5	36.99	1,009.1	22.77	12.7

SOURCE: Columbia Region Association of Governments, Economic Indicators: An Illustrated Statistical Abstract of the Portland-Vancouver Metropolitan Area, 1970, pp. 1-5.

An estimated 11,500 people daily commute to work in Oregon across the Interstate Bridge. This is a substantial number of Washington

residents working in Oregon and represents approximately one-quarter of the residents of Vancouver. Clark County's growth rate "reflects suburban development patterns in evidence in essentially all urban areas of the country" (Smith, 1972). This is a result particularly of cheaper land at the periphery as opposed to more central locations. In the case of Clark County, differentiation in taxes between Oregon and Washington may account for some of its increase. Washington has some tax advantages not present in Oregon, specifically, lower inheritance taxes and property taxes. Property taxes are approximately 40 percent lower in the Washington portion of the Portland-Vancouver SMSA which encourages new home buyers to locate in Clark County. Also taxes on inheritance are lower. Thus wealthy residents are encouraged to locate north of the Columbia River (Smith, 1972). According to Table XIV, which compares average property tax rates, Oregon is approximately 40 percent higher.

TABLE XIV

PROPERTY TAXES PAID PER $1,000 OF PERSONAL INCOME

State	Amount
Washington	$36.30
Oregon	50.65
California	65.21

SOURCE: Oregon Department of Commerce, A Brief Comparison of Taxes in Oregon, Washington and California, August 1968.

Lack of a state income tax in Washington encourages population growth even though income earned in Oregon is taxed. Washington compensates for its lack of income tax by taxing retail sales at 5 percent of

the sales price (including a local sales tax of 1/2 of 1 percent). Oregon, lacking a sales tax, has a progressive graduated income tax.

The political boundary has had a number of observable effects on the development of Clark County. In particular, Clark County has not been able to retain its share of the market in retailing comparison goods.

> A moderate population base and the tax differential between Washington and Oregon discouraged the development of major shopping facilities in the county, with the result that county (trade area) residents had to purchase the bulk of their comparison goods in Portland stores (Smith, 1972).

In an interview with Jim Baker (CCIM), a number of ideas came out concerning the question of why there had been no large shopping center development in southern Washington. Until recently, Vancouver did not have the population to support a regional center. Secondly, the political boundary had a number of effects: the boundary being a river made it a natural barrier keeping Portland residents on the Oregon side due to the inconvenience of crossing the river. The existence of only one bridge between the two states is the result of political decisions and the effect of the new bridge I-205 to be built is also due to these decisions. The impact of the I-205 bridge will be discussed later. The differentiation in taxes has had a number of effects: (1) the sales tax in Washington causes construction costs to be less in Oregon; and (2) people are more willing to drive to Portland to avoid the sales tax than Oregon residents are willing to obtain permits to purchase items in Washington tax free. This is due to two factors: ignorance concerning the permits and the time expended in obtaining them. This lack of shopping centers has created the situation that "Clark County

has been able to retain less than 50 percent of the total comparison good potential generated there" (Smith, 1972).

A 1973 report, Clark County Consumer Attitudes Toward Shopping in Downtown Vancouver, reveals the fact that the majority of households in Clark County spend 20 percent or less of their money in the Vancouver CBO.

> The failure to capture a larger share of the consumer's spending dollar may be attributed, in part, to a limitation on the variety and selection presented to the consumer by downtown Vancouver businesses. Hence, the consumer shops elsewhere (Clark County Consumer, etc., 1973, 20).

The report also states (Table XV) other places where Clark County residents shop. Jantzen Beach and Lloyd Center are the most important for consumers who shop downtown, and for consumers who do not shop downtown Vancouver, neighborhood centers around Vancouver weigh more heavily.

TABLE XV

SHOPPING CENTERS THAT CLARK COUNTY RESIDENTS PATRONIZE

Percentages of Clark County Households Who Say That They Shop in Downtown Vancouver	Also Shop in These Areas	Percentages of Clark County Households Who Say That They Do Not Shop in Downtown Vancouver
54%	Lloyd Center	49%
54%	Jantzen Beach	52%
22%	Downtown Portland	16%
10%	Eastside Portland	16%
3%	Westside Portland	5%
2%	Ridgefield	2%
10%	Battleground	10%
8%	Camas-Washougal	7%
30%	Hazeldell	32%
13%	Local	16%
53%	Vancouver--not downtown	62%
4%	Clark County--other	2%

SOURCE: Clark County Consumer Attitudes Toward Shopping in Downtown Vancouver, 1973, p. 23.

Influences on shopping are related to the types of goods and services wanted (see Table XVI). Important for Clark County residents for purchases such as food, drugs, and variety items commonly classified as convenience goods are the reasons: close to home or work, and personal service. For higher value items, large selection and low prices are more important and distance traveled becomes less important. Shoppers are more willing to travel for these items (see Table XVII).

TABLE XVI

CLARK COUNTY RESIDENTS' REASONS FOR SHOPPING FOR ASSORTED GOODS

Clark County Households Say That They are Most Influenced as to Where They Shop by	When They Shop for						
	Personal Services	Food	Medicine and Drugs	Clothing	Variety Items	Furniture & Appliances	Automobiles
Nearness to work or residence	51%	60%	58%	27%	61%	20%	18%
Good service	34%	21%	24%	21%	12%	29%	32%
Low prices	21%	55%	36%	36%	39%	41%	41%
Habit	16%	9%	11%	7%	6%	8%	7%
Large selection	11%	20%	11%	46%	24%	26%	17%
Pleasant surroundings	7%	6%	5%	7%	4%	6%	3%
Convenience	5%	4%	5%	4%	5%	3%	2%
No traffic problems	8%	11%	8%	9%	9%	4%	3%
No sales tax	3%	5%	2%	7%	3%	10%	5%
Quality brands	2%	5%	1%	13%	2%	11%	11%
Advertising	2%	6%	2%	4%	3%	4%	5%
Credit available	1%	1%	3%	8%	1%	8%	1%
All other reasons	3%	2%	4%	5%	2%	4%	5%

SOURCE: Clark County Consumer Attitudes Towards Shopping in Downtown Vancouver, 1973, p. 25.

TABLE XVII

CLARK COUNTY RESIDENTS' CHOICE OF SHOPPING CENTERS FOR SHOPPING FOR ASSORTED GOODS

Percentages of Clark County Households Shop for These Items	Usually at These Places: Downtown Vancouver	Other Vancouver	Hazeldell	Jantzen Beach	Downtown Portland	Portland East	Lloyd Center	All Other Places	Total
Furniture	53%	6%	3%	3%	11%	13%	1%	10%	100%
Children's clothing	47%	13%	11%	7%	7%	5%	6%	4%	100%
Women's clothing	47%	10%	10%	5%	13%	3%	9%	3%	100%
Men's clothing	42%	14%	10%	5%	11%	5%	7%	6%	100%
Autos	39%	8%	7%	-	17%	4%	-	25%	100%
Appliances	37%	8%	7%	5%	10%	20%	1%	12%	100%
Television	36%	14%	3%	4%	11%	15%	2%	15%	100%
Drug & medical supplies	21%	46%	20%	-	1%	1%	-	11%	100%
Variety items	13%	48%	29%	1%	1%	1%	-	7%	100%
Food	7%	37%	29%	3%	5%	1%	-	18%	100%

SOURCE: Clark County Consumer Attitudes Toward Shopping in Downtown Vancouver, 1973, p. 26.

Due to differences between Oregon and Washington, Clark County has not until recently been the site of any major regional shopping centers. Thus, a lack of large selection for comparison goods plus the Washington State sales tax have encouraged Clark County residents to shop in Oregon.

OTHER FACTORS INFLUENCING SITE AND SUCCESS OF JANTZEN BEACH SHOPPING CENTER

Jantzen Beach Shopping Center was located on the first available site in Oregon beyond Vancouver in order to intercept customers from Clark County (Peter Van Dyke, President, Jantzen Beach, Inc., Interview). The lack of competition in southern Washington has encouraged consumer mobility, and Jantzen Beach's accessibility from Interstate 5 to both Oregon and Washington shoppers has helped make it a success. An employee of Hayden Island, Inc. noted that another factor in the location of the center on Hayden Island includes the decision made in 1964, by Hayden Island, Inc., to make it a commercial and residential center (Pat Domine, Interview). The availability of this large tract of land in a very accessible location also had its impact on the decision. Other tracts of land of this size were not available within North Portland and tracts that were available in Washington were north of Vancouver or in East Clark County.

The phenomenal success of Jantzen Beach can be related to other factors besides the effect of the political boundary. Jantzen Beach, Incorporated began business in 1972. This early start had the effect of preempting possible development elsewhere.

The good management and marketing program have also played a role in the success of Jantzen Beach Shopping Center. A well-selected variety of stores offers a diverse assortment of goods and services to customers. Group advertising informs people of the center and encourages them to shop there. The planning of varied exhibits and displays makes Jantzen Beach a fun place to go and a pleasant place to shop. The development of recreational facilities primarily for children has encouraged parents to bring their children to Jantzen Beach Shopping Center for pleasure.

FUTURE IMPACTS ON JANTZEN BEACH SHOPPING CENTER

As situations change, what future impacts will Jantzen Beach Shopping Center face? Presently two major changes are occurring: first, the opening of Vancouver Mall located in East Clark County at the intersection of I-205 and Fourth Plain Boulevard; and secondly, the future building of the I-205 bridge connecting East Clark County with East Multnomah County.

Vancouver Mall, a regional shopping center under construction in East Clark County, is expected to contain 848,000 square feet of gross leasable area (GLA). It will include five major department stores and a variety of smaller specialty stores (Frischer, 1973).

It will be more than 100,000 square feet larger than downtown Vancouver, and with its major department stores will out-compete Vancouver downtown which presently has only one department store.

Reaction to the impact of competition from Vancouver Mall on Jantzen Beach sales varies. It is expected to cut into some of its sales.

Roger Martin considers the Vancouver Mall a "dangerous spot to open a shopping center" (Interview). He feels that Vancouver Mall will have some effect on Jantzen Beach but that it is more likely to affect Lloyd Center. He believes this to be true because the quality of department stores is to be higher in the Vancouver Mall. "The affluent are more time conscious than the less wealthy." Higher income Vancouver shoppers are more likely to patronize Vancouver Mall as opposed to Lloyd Center, Washington Square, or Portland Downtown, where the store mix would be of similar quality. With eastern Clark County containing more wealthy families, they can support the shopping center. However, the less wealthy people in central Vancouver are less likely to be drawn to the Mall, since proximity and the continued lack of sales tax at Jantzen Beach will be a strong drawing card (Martin, Interview).

It is expected that with the opening of Vancouver Mall, Jantzen Beach's sales will lessen for a period of time and then build up due to customer familiarity with the shopping center. Also, expansion of Jantzen Beach to include another large department store (K-Mart) and another large specialty store (Nordstrom's Place 2) will also help to draw customers.

The impact of the I-205 bridge, scheduled to open in 1981 or 1982, is expected to be totally positive. Peter Van Dyke, President of Jantzen Beach, believes this because it will detour the interstate truck traffic off Interstate 5 over to Interstate 205, thus lessening traffic congestion on the freeway (Interview).

Current expansion of Jantzen Beach Shopping Center, customer familiarity with the center, lack of a sales tax due to its location in

Oregon, and traffic flow across the Interstate 5 bridge will keep Jantzen Beach a viable center.

The success of Jantzen Beach Shopping Center is related to the effects of differences in taxation between Oregon and Washington. The customer survey indicated that the majority of shoppers patronizing Jantzen Beach Shopping Center are Clark County residents. Their reasons for shopping at Jantzen Beach Shopping Center--large selection, close to home, other reasons, and no sales tax--help to demonstrate the role the political boundary plays both on customer perception and lack of comparison goods retailing in Clark County. The difference found between Portland and Vancouver customers in their shopping frequency at Jantzen Beach indicates a role difference the center plays in their shopping patterns. Because there was little difference between their shopping frequency in general at all shopping centers, it appears that for Vancouver shoppers, Jantzen Beach is a regular shopping place whereas Portland customers shop at Jantzen Beach Shopping Center more infrequently and patronize other centers in Portland more.

Due to the previous lack of shopping center development in Clark County, Jantzen Beach was able to locate where it would be able to intercept customers from other centers in Portland. Of course it is necessary to realize that the availability of a large tract of land and good management practices have played an important role in the success of Jantzen Beach. However, it appears that the role the political boundary has played in customer perceptions and lack of shopping center development in Clark County is a significant contributing factor to the success of Jantzen Beach Shopping Center.

CHAPTER V

SUMMARY AND CONCLUSIONS

The political boundary between the states of Oregon and Washington has had a significant effect on the success of Jantzen Beach Shopping Center and on the development of the Portland-Vancouver metropolitan area. The differentiation in taxation between the two states has created variations on the landscape. Differences in income taxes, property taxes, and sales taxes have created situations where locations have comparative advantage as compared to others. This is particularly apparent in the area of comparison goods retailing. One of the effects of the Washington State sales tax has been to encourage Washington shoppers to shop in Oregon in order to save on the sales tax. Yet differences in property taxes and lack of a state income tax have encouraged residential growth in Clark County, Washington. Jantzen Beach Shopping Center has been able to locate in an area very accessible to Clark County consumers, and to provide an intervening opportunity for customers who would otherwise travel to Portland for shopping.

Jantzen Beach Shopping Center is an anomaly on the landscape in terms of traditional retailing geography. Located on an island in the center of a large river with a relatively small population within a five-minute travel time, Jantzen Beach has defied traditional criteria for locations of regional shopping centers. The use of Huff's model for determination of intraurban trade area boundaries established Hayden

Island as a relatively poor site for a regional shopping center. The model predicted a locational efficiency that varied between 60 and 84 percent depending upon the exponent of distance used. This suggests that Jantzen Beach is located off-center to consumer residential areas. However, comparing Jantzen Beach's actual locational efficiency of 139 percent with its predicted figure of 84 percent, Jantzen Beach is a very successful shopping center.

The success of Jantzen Beach Shopping Center relates to a number of factors: its accessibility to Interstate 5; a good management and marketing program which includes creating a good store mix; advertising; exhibits and activities which make it an interesting place for shopping and recreation. The effects of the political boundary dividing its market area into two states are also important. The sales tax in Washington and the lack of development of large shopping centers in Clark County prior to this time are particularly significant. Clark County residents have traditionally had to shop in Portland for comparison goods. Jantzen Beach Shopping Center has effectively located in the first available area for a large shopping center in order to intercept Washington shoppers traveling further south to Lloyd Center, Portland Downtown, and other shopping areas in Portland, Oregon.

A survey of Jantzen Beach customers showed that the majority of shoppers at the center are Clark County residents who shop at the center because of its large selection of goods, because it is close to their homes, and because there is no sales tax at the center.

This thesis has explored the effect of the state boundary between Oregon and Washington on the success of Jantzen Beach Shopping Center.

This has been done by running a marketing model; testing Jantzen Beach's actual performance with its predicted performance by the model; analyzing Jantzen Beach's customer shopping patterns, reasons for shopping, frequency of shopping, and residences; and looking at the development of Clark County. The conclusion of this thesis is that the success of Jantzen Beach Shopping Center has been a combination of factors. Traditional reasons for exceptional shopping center success have played a role: good and innovative management, accessibility, and an early start prior to any competitive shopping center development. However, a principal element is the effect of the political boundary marking variations in tax structures, in particular the existence of a Washington State sales tax while none is present in Oregon.

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APPENDICES

APPENDIX I

ALLOCATION BY RETAIL LOCATION AND MARKET AREA; AND ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	1.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.044	.067	.041	.042	.034	.273	.278	.053	.012	.111	.016	.008	.021
2	.038	.100	.057	.053	.027	.215	.332	.049	.015	.074	.017	.008	.015
3	.035	.127	.078	.071	.034	.210	.245	.069	.020	.073	.016	.008	.014
4	.026	.293	.104	.086	.020	.152	.177	.037	.024	.053	.011	.005	.011
5	.034	.076	.058	.052	.017	.289	.333	.026	.014	.063	.015	.007	.015
6	.031	.139	.124	.100	.019	.232	.220	.034	.021	.049	.014	.006	.011
7	.032	.032	.032	.039	.009	.446	.323	.012	.008	.041	.011	.005	.009
8	.036	.060	.064	.070	.013	.323	.321	.020	.012	.049	.014	.006	.011
9	.034	.080	.106	.116	.014	.272	.259	.025	.016	.046	.014	.006	.010
10	.052	.031	.050	.039	.010	.378	.350	.013	.008	.053	.016	.007	.012
11	.047	.042	.043	.058	.009	.210	.496	.014	.011	.040	.015	.006	.009
12	.071	.046	.045	.059	.011	.380	.259	.016	.012	.058	.021	.009	.013
13	.108	.033	.033	.039	.011	.364	.270	.014	.010	.062	.029	.011	.014
14	.058	.035	.034	.044	.010	.424	.281	.014	.009	.053	.018	.007	.012
15	.129	.038	.035	.043	.014	.290	.281	.017	.012	.070	.038	.016	.018
16	.132	.040	.035	.043	.015	.281	.265	.018	.012	.084	.040	.016	.019
17	.167	.036	.036	.042	.011	.291	.262	.014	.011	.061	.040	.014	.015
18	.067	.068	.073	.087	.016	.270	.236	.025	.020	.062	.029	.012	.014
19	.036	.080	.119	.190	.014	.223	.211	.022	.022	.051	.014	.007	.012
20	.040	.106	.116	.146	.016	.210	.202	.026	.046	.057	.017	.008	.012
21	.036	.142	.123	.105	.019	.194	.203	.031	.056	.056	.015	.007	.012
22	.053	.082	.080	.106	.018	.212	.240	.027	.061	.067	.022	.010	.021
23	.046	.079	.081	.096	.018	.212	.234	.026	.094	.069	.020	.010	.015
24	.042	.112	.086	.080	.022	.166	.192	.031	.148	.063	.018	.009	.013
25	.034	.134	.076	.071	.046	.170	.217	.105	.022	.086	.015	.007	.017
26	.077	.035	.030	.038	.016	.226	.368	.021	.010	.106	.035	.015	.024
27	.042	.026	.027	.032	.009	.336	.409	.012	.007	.066	.013	.006	.016
28	.036	.028	.025	.030	.009	.230	.530	.012	.007	.061	.012	.005	.016
29	.042	.041	.030	.037	.020	.220	.339	.025	.009	.168	.019	.009	.041
30	.044	.039	.030	.037	.019	.220	.339	.023	.009	.169	.020	.010	.041
31	.039	.036	.029	.037	.016	.256	.406	.022	.008	.106	.016	.007	.019
32	.039	.039	.028	.035	.020	.208	.297	.024	.009	.232	.016	.008	.043
33	.077	.037	.032	.039	.018	.220	.314	.023	.011	.144	.035	.016	.035
34	.035	.129	.072	.066	.040	.186	.234	.090	.019	.090	.015	.007	.018
35	.036	.090	.055	.053	.080	.171	.231	.128	.020	.096	.015	.008	.018
36	.039	.071	.045	.043	.117	.167	.252	.065	.014	.104	.016	.008	.020
37	.040	.046	.034	.041	.057	.197	.299	.036	.011	.180	.018	.009	.032
38	.030	.069	.044	.043	.206	.142	.193	.079	.014	.134	.014	.007	.025
39	.037	.073	.046	.046	.109	.164	.244	.069	.017	.139	.017	.009	.026
40	.031	.031	.023	.027	.023	.152	.196	.019	.008	.405	.014	.007	.065
41	.032	.029	.022	.026	.016	.144	.206	.018	.007	.385	.013	.006	.095
42	.041	.032	.026	.030	.015	.192	.273	.017	.008	.269	.017	.008	.073
43	.048	.040	.031	.037	.017	.201	.303	.021	.011	.206	.021	.010	.054
44	.035	.028	.022	.027	.016	.161	.245	.015	.007	.317	.015	.007	.105
45	.043	.034	.029	.033	.018	.189	.285	.020	.010	.247	.020	.009	.061
46	.041	.033	.026	.031	.020	.174	.248	.018	.009	.305	.018	.009	.070
47	.037	.053	.035	.037	.073	.173	.235	.049	.013	.228	.018	.009	.041
48	.056	.046	.036	.043	.019	.223	.279	.022	.013	.186	.023	.011	.043
49	.049	.042	.033	.039	.020	.203	.304	.021	.012	.199	.020	.010	.046
50	.050	.043	.034	.040	.021	.209	.262	.021	.013	.220	.021	.011	.055
51	.045	.037	.040	.035	.022	.179	.267	.021	.011	.260	.021	.010	.063
52	.088	.043	.037	.041	.018	.217	.299	.021	.016	.095	.060	.045	.021
53	.089	.043	.037	.042	.018	.211	.302	.021	.016	.093	.061	.046	.021
54	.089	.043	.037	.042	.018	.214	.295	.022	.016	.096	.060	.047	.021
55	.092	.043	.036	.042	.018	.214	.295	.021	.015	.093	.065	.047	.020
56	.097	.039	.034	.038	.016	.210	.287	.019	.014	.085	.074	.069	.019
57	.096	.039	.034	.039	.016	.215	.294	.019	.014	.087	.073	.054	.019
58	.103	.034	.030	.035	.013	.199	.270	.017	.012	.075	.091	.105	.017
59	.107	.035	.031	.035	.014	.212	.267	.016	.012	.077	.109	.047	.017
60	.101	.031	.028	.032	.012	.196	.264	.015	.011	.070	.095	.128	.016
61	.121	.032	.028	.034	.012	.201	.270	.013	.011	.069	.134	.059	.016
62	.118	.032	.029	.033	.012	.203	.273	.015	.011	.071	.143	.044	.016
63	.111	.033	.030	.034	.013	.210	.263	.015	.012	.073	.127	.041	.016
64	.115	.034	.030	.035	.013	.205	.276	.016	.012	.073	.131	.043	.017
65	.109	.037	.033	.037	.015	.215	.293	.018	.013	.082	.093	.036	.018
66	.100	.038	.032	.038	.015	.205	.280	.018	.013	.081	.081	.082	.018
67	.100	.041	.035	.041	.016	.217	.296	.020	.014	.088	.077	.035	.020

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZEN BEACH	1977	518,800	2.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.039	.069	.039	.039	.035	.297	.271	.062	.010	.103	.013	.006	.019
2	.031	.116	.060	.053	.026	.214	.340	.055	.013	.060	.013	.005	.012
3	.028	.157	.090	.077	.033	.204	.223	.065	.018	.057	.012	.005	.011
4	.017	.420	.115	.088	.014	.116	.127	.032	.020	.033	.007	.003	.007
5	.028	.080	.061	.051	.014	.316	.339	.024	.012	.048	.011	.004	.012
6	.023	.170	.160	.117	.015	.225	.186	.032	.018	.033	.010	.004	.008
7	.024	.024	.026	.033	.006	.529	.305	.008	.005	.025	.007	.003	.006
8	.029	.057	.068	.075	.009	.361	.318	.016	.010	.034	.011	.004	.008
9	.027	.083	.132	.145	.010	.282	.235	.021	.014	.030	.010	.004	.007
10	.047	.024	.025	.034	.006	.437	.351	.009	.005	.037	.012	.005	.009
11	.040	.036	.039	.057	.006	.200	.558	.010	.008	.025	.011	.004	.006
12	.071	.040	.042	.059	.008	.446	.238	.012	.009	.042	.017	.007	.010
13	.124	.026	.029	.035	.008	.419	.250	.010	.007	.045	.027	.009	.011
14	.054	.027	.028	.039	.007	.505	.259	.010	.006	.037	.014	.005	.009
15	.160	.052	.030	.039	.010	.315	.268	.013	.009	.055	.039	.014	.015
16	.165	.034	.031	.040	.011	.303	.249	.014	.010	.070	.042	.015	.016
17	.221	.029	.031	.037	.008	.308	.239	.010	.008	.044	.041	.013	.011
18	.096	.069	.082	.102	.013	.288	.213	.022	.019	.047	.027	.010	.011
19	.027	.080	.147	.266	.009	.207	.171	.018	.019	.034	.010	.004	.008
20	.032	.118	.145	.192	.012	.195	.165	.022	.053	.039	.012	.005	.008
21	.028	.174	.158	.124	.015	.176	.166	.028	.068	.038	.011	.005	.008
22	.048	.088	.093	.130	.014	.207	.217	.024	.081	.051	.019	.008	.019
23	.040	.082	.092	.112	.014	.202	.206	.023	.141	.052	.016	.007	.011
24	.033	.123	.094	.083	.017	.160	.148	.028	.243	.043	.014	.006	.009
25	.026	.164	.085	.007	.050	.150	.185	.145	.020	.070	.011	.005	.013
26	.082	.029	.026	.034	.013	.231	.392	.017	.007	.097	.035	.014	.023
27	.035	.018	.021	.026	.006	.374	.432	.008	.004	.050	.010	.004	.013
28	.028	.020	.019	.023	.006	.223	.602	.008	.004	.044	.008	.003	.013
29	.036	.036	.026	.032	.017	.222	.352	.023	.007	.179	.016	.007	.047
30	.059	.034	.026	.032	.016	.223	.353	.020	.006	.160	.017	.008	.047
31	.032	.029	.025	.032	.013	.269	.445	.019	.005	.096	.013	.005	.016
32	.033	.033	.023	.030	.017	.204	.291	.021	.006	.272	.015	.006	.049
33	.083	.031	.028	.036	.015	.224	.319	.020	.008	.146	.037	.015	.037
34	.028	.158	.080	.069	.042	.172	.207	.120	.017	.076	.011	.005	.015
35	.029	.096	.055	.050	.104	.150	.200	.189	.017	.080	.011	.005	.015
36	.032	.071	.042	.039	.172	.171	.227	.119	.012	.090	.012	.006	.017
37	.035	.042	.030	.038	.070	.192	.297	.036	.009	.196	.015	.007	.033
38	.021	.062	.037	.035	.338	.109	.146	.091	.010	.116	.010	.004	.021
39	.030	.074	.046	.045	.160	.146	.220	.085	.014	.135	.013	.007	.025
40	.022	.022	.016	.019	.018	.122	.152	.014	.005	.519	.010	.005	.076
41	.023	.020	.015	.019	.011	.113	.161	.013	.004	.483	.009	.004	.126
42	.034	.025	.020	.024	.011	.178	.254	.013	.005	.323	.013	.005	.096
43	.044	.034	.026	.032	.014	.196	.302	.018	.008	.233	.018	.008	.067
44	.027	.019	.016	.019	.012	.134	.209	.010	.004	.384	.011	.005	.149
45	.038	.029	.024	.028	.015	.178	.273	.016	.007	.293	.016	.007	.077
46	.033	.025	.020	.025	.017	.154	.220	.014	.006	.377	.014	.006	.089
47	.030	.050	.031	.032	.094	.158	.212	.054	.010	.264	.014	.007	.045
48	.054	.041	.033	.040	.017	.227	.272	.020	.011	.206	.020	.009	.049
49	.045	.037	.030	.036	.017	.200	.304	.018	.010	.224	.017	.008	.054
50	.046	.038	.030	.036	.018	.206	.247	.018	.010	.255	.018	.009	.069
51	.039	.030	.026	.029	.019	.165	.250	.017	.008	.312	.017	.008	.079
52	.097	.038	.033	.038	.015	.217	.296	.018	.013	.084	.073	.059	.019
53	.099	.038	.034	.038	.015	.210	.299	.018	.013	.081	.075	.062	.019
54	.099	.038	.033	.039	.015	.213	.291	.019	.013	.084	.073	.063	.019
55	.104	.038	.032	.038	.014	.213	.290	.018	.013	.080	.081	.062	.018
56	.109	.032	.029	.033	.012	.203	.273	.015	.011	.070	.095	.101	.016
57	.108	.033	.030	.034	.013	.212	.285	.015	.011	.072	.093	.078	.016
58	.113	.025	.024	.029	.009	.180	.240	.012	.009	.056	.118	.172	.013
59	.122	.027	.026	.030	.010	.203	.269	.012	.009	.060	.157	.060	.014
60	.106	.022	.021	.025	.008	.172	.227	.010	.008	.050	.123	.217	.011
61	.139	.024	.022	.027	.008	.183	.240	.009	.008	.050	.198	.080	.012
62	.134	.024	.023	.026	.009	.185	.244	.011	.008	.052	.218	.054	.012
63	.127	.025	.024	.028	.009	.198	.261	.011	.008	.056	.189	.050	.013
64	.132	.026	.024	.029	.009	.190	.252	.012	.008	.055	.196	.052	.013
65	.128	.030	.028	.032	.011	.211	.261	.014	.010	.067	.129	.043	.015
66	.111	.030	.027	.032	.011	.194	.260	.014	.010	.064	.105	.126	.015
67	.116	.035	.031	.037	.013	.215	.290	.016	.012	.075	.101	.042	.018

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZE BEACH	1977	516,000	2.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.034	.070	.037	.036	.036	.320	.262	.072	.008	.094	.010	.004	.017
2	.026	.134	.063	.052	.024	.211	.345	.061	.011	.048	.010	.004	.010
3	.022	.189	.101	.081	.033	.193	.198	.103	.016	.044	.009	.004	.008
4	.010	.549	.117	.061	.010	.081	.083	.026	.016	.019	.004	.002	.004
5	.022	.084	.064	.050	.011	.542	.341	.021	.009	.036	.006	.003	.009
6	.017	.260	.199	.132	.011	.210	.152	.029	.016	.021	.007	.003	.005
7	.017	.017	.020	.026	.003	.605	.279	.005	.003	.015	.005	.002	.004
8	.023	.054	.072	.079	.006	.397	.310	.013	.007	.023	.008	.003	.006
9	.020	.064	.160	.175	.007	.284	.207	.018	.011	.020	.007	.003	.004
10	.041	.017	.020	.029	.004	.493	.343	.006	.003	.025	.009	.003	.006
11	.034	.029	.035	.055	.004	.186	.615	.007	.006	.015	.008	.003	.004
12	.070	.034	.039	.056	.005	.511	.213	.009	.007	.030	.014	.005	.007
13	.140	.020	.024	.030	.005	.471	.226	.007	.005	.033	.024	.007	.008
14	.048	.021	.023	.034	.004	.586	.232	.007	.004	.024	.011	.003	.006
15	.195	.026	.026	.035	.008	.336	.252	.010	.007	.042	.039	.013	.012
16	.204	.028	.027	.036	.008	.320	.230	.011	.007	.057	.043	.013	.014
17	.284	.022	.026	.032	.005	.317	.211	.007	.006	.031	.041	.011	.008
18	.104	.069	.092	.118	.010	.304	.191	.019	.017	.035	.025	.008	.008
19	.020	.075	.172	.352	.006	.161	.131	.013	.016	.021	.006	.003	.005
20	.024	.125	.175	.243	.009	.174	.129	.018	.059	.026	.009	.003	.005
21	.021	.205	.194	.140	.011	.152	.130	.024	.080	.025	.008	.003	.006
22	.044	.092	.105	.157	.011	.197	.191	.021	.105	.038	.016	.006	.017
23	.033	.082	.101	.126	.011	.186	.174	.020	.203	.038	.013	.005	.008
24	.024	.123	.094	.079	.013	.127	.105	.022	.366	.028	.009	.004	.006
25	.020	.194	.091	.076	.052	.128	.152	.193	.018	.055	.008	.003	.010
26	.066	.023	.022	.030	.010	.234	.416	.015	.005	.058	.036	.012	.021
27	.029	.013	.016	.020	.004	.406	.447	.005	.003	.036	.007	.002	.010
28	.021	.014	.014	.017	.004	.210	.665	.005	.002	.031	.005	.002	.010
29	.031	.031	.022	.029	.014	.224	.362	.021	.005	.190	.013	.005	.053
30	.035	.029	.022	.029	.013	.224	.364	.017	.005	.191	.015	.006	.053
31	.027	.024	.020	.028	.010	.279	.480	.016	.004	.085	.010	.004	.014
32	.028	.027	.019	.025	.014	.197	.281	.018	.004	.315	.012	.004	.054
33	.089	.027	.024	.033	.013	.227	.324	.017	.006	.148	.038	.014	.040
34	.022	.190	.086	.070	.042	.155	.179	.157	.014	.062	.008	.004	.012
35	.021	.096	.052	.046	.128	.126	.164	.265	.015	.064	.008	.004	.011
36	.025	.067	.037	.038	.244	.150	.195	.136	.009	.075	.009	.004	.014
37	.036	.038	.027	.034	.084	.186	.294	.037	.007	.212	.012	.005	.034
38	.013	.050	.028	.026	.495	.074	.096	.094	.007	.090	.006	.002	.015
39	.023	.073	.043	.041	.227	.126	.192	.100	.012	.126	.010	.005	.022
40	.015	.015	.010	.013	.014	.092	.111	.010	.003	.624	.006	.003	.085
41	.015	.015	.010	.012	.008	.083	.118	.009	.002	.566	.006	.002	.156
42	.027	.019	.016	.019	.006	.160	.228	.009	.003	.375	.010	.004	.122
43	.040	.029	.022	.028	.011	.189	.296	.015	.006	.262	.015	.006	.061
44	.019	.015	.010	.013	.008	.106	.170	.007	.003	.440	.007	.003	.201
45	.032	.023	.019	.023	.012	.163	.256	.013	.005	.340	.013	.005	.096
46	.026	.019	.015	.019	.013	.132	.188	.010	.004	.449	.010	.005	.110
47	.024	.045	.027	.026	.119	.141	.187	.058	.008	.299	.011	.005	.048
48	.051	.037	.030	.037	.014	.230	.264	.017	.009	.227	.018	.008	.056
49	.041	.032	.026	.032	.014	.196	.301	.015	.008	.250	.015	.007	.063
50	.042	.032	.026	.033	.015	.201	.231	.015	.008	.291	.015	.007	.084
51	.033	.024	.021	.024	.016	.149	.228	.014	.006	.366	.014	.006	.098
52	.107	.033	.030	.035	.012	.215	.289	.015	.011	.073	.088	.076	.016
53	.109	.033	.030	.035	.012	.205	.292	.015	.011	.069	.091	.081	.016
54	.109	.033	.030	.036	.012	.210	.283	.016	.011	.073	.088	.083	.016
55	.115	.032	.029	.035	.011	.208	.280	.015	.011	.068	.099	.081	.015
56	.119	.025	.024	.028	.009	.190	.253	.012	.009	.056	.118	.145	.013
57	.118	.027	.026	.030	.010	.204	.270	.012	.009	.059	.117	.105	.014
58	.115	.018	.018	.022	.006	.153	.200	.008	.006	.040	.144	.261	.009
59	.134	.021	.021	.024	.007	.187	.244	.009	.007	.046	.217	.074	.011
60	.102	.015	.015	.017	.005	.137	.178	.006	.005	.033	.145	.334	.008
61	.150	.017	.016	.020	.005	.157	.202	.006	.005	.035	.278	.101	.009
62	.144	.016	.017	.020	.005	.159	.206	.007	.005	.037	.313	.062	.009
63	.138	.018	.019	.022	.006	.177	.230	.008	.006	.041	.268	.058	.010
64	.144	.019	.018	.023	.006	.168	.218	.008	.006	.040	.279	.061	.010
65	.145	.024	.023	.027	.008	.200	.263	.011	.008	.053	.173	.051	.012
66	.119	.023	.021	.026	.008	.175	.232	.010	.007	.049	.130	.187	.012
67	.131	.030	.027	.033	.010	.210	.280	.013	.009	.062	.130	.049	.015

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	3.00	5.00

COMMENTS = REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.030	.671	.034	.033	.036	.544	.251	.082	.006	.086	.008	.003	.016
2	.021	.152	.065	.051	.023	.207	.347	.067	.009	.038	.008	.003	.008
3	.017	.223	.111	.083	.031	.160	.172	.121	.014	.033	.006	.003	.006
4	.005	.663	.109	.069	.006	.052	.050	.019	.011	.010	.002	.001	.002
5	.017	.036	.066	.048	.009	.366	.340	.019	.008	.027	.006	.002	.007
6	.012	.228	.239	.143	.008	.189	.119	.025	.013	.013	.004	.002	.003
7	.012	.012	.015	.021	.002	.672	.247	.003	.002	.009	.003	.001	.002
8	.018	.050	.075	.082	.004	.431	.298	.010	.005	.015	.006	.002	.004
9	.015	.082	.169	.207	.005	.279	.178	.014	.009	.012	.005	.002	.003
10	.035	.013	.015	.024	.002	.546	.329	.004	.002	.017	.007	.002	.004
11	.028	.024	.051	.052	.002	.170	.665	.005	.004	.009	.006	.002	.002
12	.067	.028	.035	.056	.003	.573	.187	.006	.005	.020	.011	.004	.005
13	.154	.015	.019	.025	.003	.519	.201	.005	.003	.023	.021	.005	.006
14	.042	.015	.018	.029	.003	.655	.202	.004	.003	.016	.008	.002	.004
15	.233	.021	.022	.031	.006	.352	.232	.008	.005	.031	.038	.011	.010
16	.247	.023	.023	.032	.006	.333	.209	.009	.006	.046	.044	.012	.011
17	.353	.016	.021	.027	.003	.316	.160	.005	.004	.021	.039	.009	.006
18	.111	.068	.101	.134	.008	.316	.168	.017	.015	.026	.023	.007	.006
19	.013	.066	.190	.441	.004	.150	.095	.009	.012	.012	.004	.001	.003
20	.018	.128	.202	.294	.006	.149	.097	.014	.063	.017	.006	.002	.003
21	.015	.231	.230	.152	.008	.127	.098	.010	.091	.016	.005	.002	.004
22	.036	.093	.116	.185	.009	.183	.165	.018	.133	.028	.013	.005	.014
23	.027	.078	.106	.136	.008	.164	.140	.016	.280	.027	.010	.004	.006
24	.015	.113	.086	.069	.008	.092	.068	.016	.504	.016	.006	.002	.003
25	.014	.221	.094	.074	.053	.105	.120	.248	.015	.041	.005	.002	.005
26	.091	.019	.019	.027	.008	.236	.438	.012	.004	.079	.036	.011	.020
27	.023	.009	.012	.016	.002	.438	.455	.003	.002	.026	.005	.001	.007
28	.016	.010	.010	.013	.002	.194	.719	.003	.001	.021	.003	.001	.007
29	.027	.027	.015	.025	.012	.223	.372	.016	.005	.200	.011	.004	.059
30	.030	.024	.016	.025	.011	.224	.373	.015	.003	.201	.012	.005	.059
31	.022	.019	.017	.024	.007	.287	.511	.014	.002	.075	.006	.003	.011
32	.023	.023	.015	.021	.011	.188	.269	.015	.003	.359	.009	.003	.060
33	.095	.022	.021	.030	.010	.230	.327	.015	.005	.150	.039	.013	.043
34	.016	.221	.090	.069	.042	.135	.150	.198	.012	.049	.006	.002	.009
35	.015	.094	.046	.039	.149	.100	.128	.352	.012	.048	.005	.002	.008
36	.018	.061	.032	.028	.329	.126	.160	.161	.006	.059	.006	.003	.011
37	.025	.034	.023	.031	.101	.179	.288	.037	.005	.228	.010	.004	.035
38	.007	.036	.019	.017	.648	.046	.059	.087	.004	.062	.003	.001	.010
39	.017	.069	.039	.036	.308	.104	.160	.114	.010	.113	.007	.003	.019
40	.009	.009	.005	.008	.010	.066	.077	.006	.002	.717	.004	.002	.089
41	.009	.008	.006	.008	.005	.058	.082	.006	.001	.629	.003	.001	.184
42	.021	.014	.012	.014	.006	.140	.200	.007	.002	.424	.007	.002	.151
43	.035	.024	.019	.024	.009	.180	.288	.012	.004	.290	.013	.005	.097
44	.013	.008	.007	.009	.005	.080	.131	.004	.001	.479	.005	.002	.256
45	.026	.018	.015	.018	.009	.147	.236	.010	.003	.386	.010	.004	.116
46	.020	.013	.011	.014	.010	.109	.156	.007	.003	.516	.007	.003	.141
47	.019	.040	.023	.023	.148	.124	.161	.061	.006	.332	.008	.004	.051
48	.049	.033	.027	.035	.012	.232	.255	.015	.007	.248	.016	.006	.064
49	.037	.023	.023	.029	.012	.190	.296	.012	.006	.277	.012	.005	.073
50	.038	.028	.023	.029	.013	.193	.212	.012	.006	.328	.012	.005	.101
51	.028	.019	.017	.020	.013	.131	.204	.011	.004	.420	.011	.005	.118
52	.115	.026	.027	.031	.010	.210	.279	.012	.009	.062	.104	.038	.014
53	.119	.023	.027	.031	.010	.197	.262	.012	.009	.058	.109	.104	.014
54	.118	.026	.026	.032	.010	.203	.271	.013	.009	.062	.105	.108	.014
55	.125	.027	.025	.031	.009	.201	.266	.012	.009	.057	.120	.104	.013
56	.124	.020	.019	.023	.007	.172	.225	.009	.006	.044	.141	.200	.010
57	.127	.021	.021	.025	.007	.191	.250	.009	.007	.047	.143	.140	.011
58	.109	.012	.012	.015	.004	.120	.155	.005	.004	.026	.163	.369	.006
59	.141	.015	.016	.019	.005	.165	.212	.006	.005	.033	.248	.068	.008
60	.089	.009	.009	.011	.003	.100	.127	.004	.003	.019	.155	.468	.005
61	.154	.011	.011	.014	.003	.126	.159	.004	.003	.023	.366	.120	.006
62	.145	.011	.011	.014	.003	.128	.163	.005	.003	.024	.420	.067	.006
63	.143	.013	.014	.016	.004	.151	.192	.005	.004	.028	.360	.064	.007
64	.149	.013	.013	.017	.004	.140	.178	.005	.004	.027	.376	.067	.007
65	.160	.019	.019	.022	.006	.185	.240	.008	.006	.041	.226	.057	.010
66	.121	.017	.016	.021	.005	.151	.196	.007	.005	.035	.154	.262	.009
67	.146	.025	.023	.029	.008	.202	.264	.010	.008	.051	.165	.057	.013

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	% ALLOCATED	EXP.	CONST.
JANIZY BEACH	1977	518,800	3.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.026	.072	.032	.030	.036	.366	.239	.094	.005	.079	.006	.002	.014
2	.017	.172	.067	.049	.021	.201	.346	.074	.008	.030	.006	.002	.006
3	.012	.258	.119	.084	.029	.163	.146	.140	.012	.024	.005	.002	.005
4	.003	.754	.098	.056	.003	.032	.028	.013	.008	.005	.001	.000	.001
5	.013	.068	.067	.046	.007	.388	.336	.016	.006	.020	.005	.001	.005
6	.008	.253	.279	.151	.006	.186	.091	.021	.010	.008	.003	.001	.002
7	.008	.008	.011	.016	.001	.730	.214	.002	.001	.005	.002	.001	.001
8	.014	.046	.077	.084	.003	.463	.284	.008	.004	.010	.004	.001	.003
9	.011	.079	.219	.239	.004	.268	.149	.011	.007	.007	.003	.001	.002
10	.030	.009	.012	.020	.001	.595	.310	.003	.001	.011	.005	.001	.003
11	.023	.019	.027	.049	.001	.153	.710	.003	.005	.006	.004	.001	.001
12	.063	.023	.051	.052	.002	.631	.161	.004	.004	.014	.009	.002	.004
13	.167	.011	.016	.020	.002	.562	.175	.003	.002	.016	.019	.004	.004
14	.036	.011	.014	.024	.002	.718	.171	.003	.002	.010	.006	.001	.003
15	.275	.016	.018	.027	.004	.362	.210	.006	.004	.023	.037	.010	.008
16	.294	.018	.020	.028	.004	.340	.186	.006	.004	.026	.043	.010	.009
17	.426	.012	.017	.022	.002	.305	.150	.003	.003	.014	.037	.007	.004
18	.118	.066	.110	.151	.006	.324	.147	.014	.014	.019	.021	.006	.005
19	.008	.056	.199	.525	.002	.118	.065	.006	.009	.007	.002	.001	.002
20	.013	.127	.225	.344	.004	.124	.070	.010	.064	.010	.004	.001	.002
21	.010	.254	.263	.160	.006	.105	.072	.017	.099	.010	.003	.001	.002
22	.033	.093	.125	.212	.007	.166	.138	.016	.164	.020	.010	.003	.012
23	.020	.071	.106	.140	.006	.136	.106	.012	.368	.018	.007	.002	.004
24	.009	.095	.073	.055	.005	.061	.041	.011	.636	.009	.003	.001	.002
25	.010	.242	.094	.070	.051	.083	.092	.307	.012	.030	.003	.001	.006
26	.095	.015	.016	.024	.006	.237	.458	.010	.003	.071	.036	.010	.019
27	.018	.006	.009	.012	.001	.464	.458	.002	.001	.019	.003	.001	.006
28	.011	.006	.007	.009	.001	.176	.764	.002	.001	.014	.002	.001	.005
29	.023	.023	.015	.022	.010	.222	.379	.016	.002	.210	.009	.003	.065
30	.026	.020	.015	.022	.009	.223	.360	.012	.002	.210	.010	.004	.065
31	.018	.015	.014	.021	.006	.292	.540	.011	.002	.066	.006	.002	.010
32	.018	.018	.012	.017	.009	.177	.253	.015	.002	.404	.007	.002	.065
33	.101	.019	.018	.027	.009	.231	.330	.013	.004	.151	.040	.012	.046
34	.012	.249	.092	.067	.040	.115	.122	.243	.010	.038	.004	.002	.007
35	.010	.086	.039	.032	.164	.075	.095	.444	.009	.034	.003	.001	.006
36	.013	.053	.026	.021	.420	.100	.124	.181	.004	.044	.004	.002	.008
37	.021	.030	.020	.028	.121	.170	.280	.037	.004	.245	.008	.003	.036
38	.003	.024	.012	.010	.770	.025	.032	.073	.002	.039	.001	.001	.006
39	.012	.062	.034	.030	.401	.082	.128	.124	.007	.097	.005	.002	.016
40	.006	.006	.004	.005	.007	.045	.051	.004	.001	.780	.002	.001	.089
41	.006	.004	.003	.005	.005	.038	.055	.004	.001	.670	.002	.001	.208
42	.016	.010	.008	.010	.004	.120	.171	.005	.001	.467	.005	.002	.182
43	.031	.020	.015	.021	.007	.170	.276	.010	.003	.317	.010	.004	.115
44	.009	.005	.004	.006	.003	.058	.096	.003	.001	.499	.003	.001	.313
45	.021	.014	.012	.014	.007	.130	.212	.008	.002	.430	.008	.003	.137
46	.015	.009	.008	.010	.007	.087	.125	.005	.002	.574	.005	.002	.151
47	.014	.035	.019	.019	.179	.106	.136	.063	.004	.360	.006	.003	.053
48	.046	.029	.025	.032	.010	.233	.245	.013	.006	.270	.014	.005	.072
49	.033	.024	.020	.025	.010	.162	.289	.010	.005	.305	.010	.004	.083
50	.033	.023	.019	.025	.011	.183	.192	.010	.005	.384	.010	.004	.120
51	.023	.015	.013	.016	.010	.112	.178	.009	.003	.470	.009	.003	.140
52	.123	.024	.023	.027	.008	.202	.265	.010	.008	.052	.122	.123	.012
53	.126	.023	.023	.027	.008	.187	.267	.010	.008	.049	.128	.132	.012
54	.125	.023	.023	.029	.008	.193	.255	.011	.008	.052	.122	.139	.012
55	.134	.023	.021	.027	.007	.190	.249	.010	.007	.047	.143	.131	.011
56	.126	.015	.015	.018	.005	.150	.193	.006	.005	.032	.162	.266	.008
57	.132	.017	.017	.020	.005	.174	.225	.007	.005	.037	.171	.181	.009
58	.096	.007	.006	.010	.002	.088	.111	.003	.002	.016	.171	.483	.004
59	.142	.010	.012	.014	.003	.140	.176	.004	.003	.023	.366	.101	.006
60	.071	.005	.005	.006	.001	.066	.082	.002	.001	.010	.151	.596	.003
61	.148	.007	.007	.010	.002	.096	.119	.002	.002	.014	.455	.135	.004
62	.137	.007	.007	.009	.002	.097	.121	.003	.002	.015	.529	.068	.004
63	.140	.008	.009	.011	.002	.122	.152	.003	.002	.018	.460	.067	.005
64	.145	.009	.009	.012	.002	.110	.138	.003	.002	.017	.478	.069	.005
65	.172	.014	.015	.018	.004	.166	.212	.006	.004	.031	.287	.063	.008
66	.116	.012	.012	.015	.003	.123	.158	.005	.003	.024	.172	.350	.006
67	.159	.020	.019	.025	.006	.190	.245	.008	.006	.041	.205	.065	.011

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	4.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.023	.071	.029	.027	.036	.386	.227	.106	.004	.071	.005	.002	.012
2	.014	.194	.068	.048	.019	.194	.343	.080	.006	.023	.005	.001	.005
3	.009	.293	.126	.084	.026	.146	.122	.159	.010	.018	.003	.001	.003
4	.001	.821	.081	.043	.002	.019	.016	.009	.005	.002	.000	.000	.001
5	.010	.090	.069	.044	.005	.410	.330	.014	.005	.014	.005	.001	.004
6	.005	.273	.314	.156	.004	.141	.068	.018	.008	.005	.002	.001	.001
7	.005	.005	.008	.012	.001	.780	.162	.001	.001	.003	.001	.000	.001
8	.011	.042	.078	.086	.002	.492	.268	.006	.003	.007	.003	.001	.002
9	.008	.074	.247	.270	.002	.252	.123	.009	.005	.004	.002	.001	.001
10	.025	.006	.049	.016	.001	.539	.289	.002	.001	.007	.003	.001	.002
11	.019	.015	.023	.045	.001	.137	.749	.002	.002	.003	.003	.001	.001
12	.059	.018	.027	.049	.001	.684	.136	.003	.003	.009	.007	.002	.003
13	.178	.008	.012	.017	.001	.594	.150	.002	.001	.011	.016	.003	.003
14	.030	.008	.011	.019	.001	.773	.143	.002	.001	.006	.004	.001	.002
15	.319	.013	.015	.023	.003	.367	.187	.004	.003	.017	.036	.008	.006
16	.344	.014	.016	.024	.003	.342	.163	.005	.003	.028	.042	.009	.007
17	.499	.008	.013	.017	.001	.237	.121	.002	.002	.009	.033	.005	.003
18	.123	.064	.119	.168	.004	.330	.127	.012	.012	.013	.019	.004	.003
19	.005	.045	.201	.599	.001	.089	.043	.004	.006	.004	.001	.000	.001
20	.009	.122	.244	.391	.003	.099	.050	.008	.064	.006	.003	.001	.001
21	.007	.271	.293	.164	.004	.081	.051	.013	.106	.006	.002	.001	.001
22	.027	.090	.132	.239	.005	.148	.114	.013	.198	.014	.008	.002	.009
23	.015	.062	.101	.137	.004	.110	.080	.009	.462	.011	.005	.002	.003
24	.005	.074	.057	.041	.003	.037	.022	.007	.746	.004	.002	.001	.001
25	.007	.257	.090	.063	.048	.063	.068	.367	.010	.021	.002	.001	.004
26	.099	.012	.013	.021	.005	.236	.477	.008	.002	.063	.036	.009	.017
27	.014	.004	.007	.009	.001	.487	.456	.001	.001	.013	.002	.001	.004
28	.008	.004	.005	.007	.001	.157	.802	.001	.000	.009	.001	.000	.004
29	.020	.019	.013	.019	.009	.219	.384	.014	.002	.219	.008	.002	.072
30	.023	.017	.013	.019	.007	.220	.386	.011	.002	.219	.009	.003	.072
31	.014	.012	.011	.017	.004	.295	.566	.009	.001	.057	.004	.001	.008
32	.015	.015	.010	.014	.007	.165	.235	.011	.001	.449	.006	.002	.070
33	.107	.016	.016	.024	.007	.232	.331	.011	.003	.152	.041	.011	.048
34	.009	.274	.091	.062	.038	.095	.097	.290	.008	.028	.003	.001	.005
35	.007	.075	.032	.025	.173	.054	.067	.532	.006	.023	.002	.001	.004
36	.009	.043	.020	.016	.510	.075	.092	.192	.003	.032	.003	.001	.006
37	.018	.026	.017	.025	.143	.161	.270	.036	.003	.257	.006	.002	.036
38	.002	.015	.007	.006	.856	.013	.017	.056	.001	.023	.001	.000	.003
39	.008	.053	.028	.024	.497	.061	.098	.128	.005	.080	.003	.001	.013
40	.003	.003	.002	.003	.004	.030	.033	.003	.000	.829	.001	.000	.087
41	.003	.003	.002	.003	.002	.025	.036	.002	.000	.695	.001	.000	.229
42	.012	.007	.006	.007	.003	.099	.142	.003	.001	.502	.003	.001	.214
43	.027	.017	.013	.017	.005	.158	.262	.008	.002	.343	.009	.003	.135
44	.005	.003	.002	.003	.002	.040	.066	.002	.000	.502	.002	.001	.369
45	.017	.011	.009	.011	.005	.113	.188	.006	.002	.471	.006	.002	.160
46	.011	.006	.005	.007	.005	.068	.097	.003	.001	.622	.004	.001	.169
47	.011	.030	.016	.015	.213	.090	.113	.064	.003	.364	.005	.002	.054
48	.044	.026	.022	.029	.008	.232	.234	.011	.005	.292	.012	.004	.081
49	.030	.020	.017	.022	.008	.174	.219	.008	.004	.332	.009	.003	.094
50	.029	.019	.016	.022	.009	.171	.172	.008	.003	.399	.008	.003	.140
51	.018	.011	.010	.012	.008	.094	.152	.006	.002	.515	.007	.002	.162
52	.129	.020	.020	.024	.006	.191	.246	.008	.006	.043	.141	.153	.010
53	.132	.019	.020	.023	.006	.174	.249	.008	.006	.040	.148	.165	.010
54	.131	.019	.020	.025	.006	.181	.236	.009	.006	.043	.140	.174	.010
55	.141	.019	.018	.023	.005	.176	.228	.006	.005	.038	.166	.163	.009
56	.122	.010	.011	.014	.003	.125	.159	.004	.003	.023	.179	.340	.006
57	.134	.013	.014	.016	.004	.155	.197	.005	.004	.028	.198	.227	.007
58	.078	.004	.005	.006	.001	.060	.074	.002	.001	.009	.168	.590	.002
59	.146	.007	.008	.010	.002	.114	.141	.003	.002	.015	.446	.110	.004
60	.052	.002	.003	.003	.001	.040	.050	.001	.001	.005	.136	.705	.001
61	.135	.004	.004	.006	.001	.070	.084	.001	.001	.008	.536	.145	.002
62	.123	.004	.005	.006	.001	.069	.085	.002	.001	.008	.630	.065	.002
63	.130	.005	.006	.008	.001	.054	.114	.002	.001	.011	.558	.066	.003
64	.134	.005	.006	.008	.001	.083	.101	.002	.001	.011	.576	.068	.003
65	.179	.010	.011	.014	.003	.145	.181	.004	.003	.022	.354	.067	.006
66	.106	.008	.008	.011	.002	.095	.120	.003	.002	.016	.183	.442	.004
67	.171	.016	.016	.021	.004	.175	.223	.006	.004	.032	.251	.073	.009

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	4.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.020	.071	.027	.024	.036	.408	.213	.119	.003	.064	.004	.001	.011
2	.011	.216	.069	.046	.018	.185	.337	.086	.005	.018	.004	.001	.004
3	.007	.326	.131	.081	.024	.128	.100	.177	.008	.013	.002	.001	.002
4	.001	.870	.067	.032	.001	.011	.008	.006	.003	.001	.000	.000	.000
5	.008	.091	.069	.042	.004	.430	.322	.013	.004	.010	.002	.001	.003
6	.003	.289	.355	.157	.003	.118	.050	.014	.006	.003	.001	.000	.001
7	.005	.003	.006	.009	.000	.821	.153	.001	.000	.001	.001	.000	.000
8	.008	.038	.079	.087	.001	.521	.251	.005	.002	.004	.002	.000	.001
9	.005	.069	.275	.301	.002	.235	.100	.007	.004	.003	.001	.000	.001
10	.020	.004	.007	.013	.001	.660	.266	.001	.000	.004	.002	.001	.001
11	.015	.011	.020	.042	.000	.121	.763	.001	.001	.002	.002	.000	.001
12	.054	.015	.023	.045	.001	.731	.114	.002	.002	.006	.005	.001	.002
13	.187	.006	.010	.013	.001	.630	.127	.002	.001	.007	.014	.002	.002
14	.024	.005	.008	.015	.001	.619	.117	.001	.001	.004	.003	.001	.001
15	.364	.010	.012	.019	.002	.347	.164	.003	.002	.012	.034	.007	.004
16	.395	.011	.013	.020	.002	.337	.140	.003	.002	.021	.041	.008	.006
17	.570	.006	.010	.013	.001	.263	.095	.001	.001	.006	.029	.004	.002
18	.128	.061	.127	.186	.003	.333	.108	.010	.011	.010	.017	.004	.003
19	.003	.035	.196	.663	.001	.065	.027	.002	.004	.002	.001	.000	.001
20	.006	.114	.258	.434	.002	.078	.034	.005	.062	.004	.002	.000	.001
21	.005	.283	.320	.165	.003	.065	.036	.010	.111	.004	.001	.000	.001
22	.022	.066	.137	.262	.004	.128	.092	.010	.234	.009	.006	.002	.007
23	.010	.051	.093	.129	.002	.085	.056	.006	.555	.007	.003	.001	.002
24	.003	.055	.042	.029	.002	.022	.012	.004	.829	.002	.001	.000	.000
25	.004	.265	.084	.056	.043	.047	.048	.426	.008	.014	.001	.000	.003
26	.103	.010	.011	.018	.004	.235	.495	.007	.001	.056	.036	.008	.016
27	.011	.003	.005	.007	.000	.508	.451	.001	.000	.009	.001	.000	.003
28	.006	.005	.005	.005	.000	.139	.833	.001	.000	.006	.001	.000	.003
29	.017	.017	.011	.016	.007	.216	.388	.013	.001	.227	.006	.002	.079
30	.020	.014	.011	.016	.006	.217	.390	.009	.001	.228	.007	.002	.080
31	.011	.009	.009	.015	.003	.296	.589	.008	.001	.049	.005	.001	.006
32	.012	.012	.008	.011	.006	.152	.217	.009	.001	.494	.004	.001	.075
33	.113	.013	.014	.022	.006	.233	.332	.010	.002	.152	.042	.010	.051
34	.006	.293	.068	.057	.034	.076	.075	.338	.006	.021	.002	.001	.004
35	.004	.065	.025	.018	.174	.037	.045	.611	.004	.015	.001	.000	.002
36	.005	.030	.014	.011	.591	.054	.065	.196	.002	.022	.001	.001	.004
37	.015	.023	.015	.022	.167	.151	.258	.035	.002	.269	.005	.001	.036
38	.001	.009	.004	.003	.910	.007	.006	.043	.001	.013	.000	.000	.002
39	.006	.044	.022	.018	.569	.044	.071	.127	.004	.063	.002	.001	.010
40	.002	.002	.001	.002	.003	.020	.021	.002	.000	.863	.001	.000	.084
41	.002	.001	.001	.002	.001	.016	.023	.001	.000	.706	.001	.000	.247
42	.009	.004	.004	.005	.002	.081	.116	.002	.000	.527	.002	.001	.247
43	.023	.013	.010	.015	.004	.146	.247	.006	.002	.368	.007	.002	.157
44	.003	.002	.001	.002	.001	.027	.047	.001	.000	.491	.001	.000	.423
45	.013	.006	.007	.008	.004	.097	.163	.004	.001	.506	.005	.001	.183
46	.008	.004	.003	.005	.004	.052	.074	.002	.001	.659	.002	.001	.185
47	.006	.025	.013	.012	.250	.074	.092	.004	.002	.401	.003	.001	.054
48	.041	.023	.019	.027	.007	.230	.222	.009	.004	.315	.011	.004	.090
49	.026	.017	.014	.020	.007	.165	.270	.007	.003	.361	.007	.003	.107
50	.025	.016	.013	.018	.007	.158	.152	.006	.003	.432	.007	.002	.162
51	.014	.008	.006	.009	.006	.076	.127	.005	.001	.554	.005	.002	.183
52	.133	.016	.017	.020	.005	.178	.229	.006	.005	.035	.160	.187	.009
53	.136	.016	.017	.020	.005	.159	.227	.006	.005	.052	.168	.201	.008
54	.135	.016	.016	.021	.005	.166	.215	.007	.005	.035	.157	.214	.008
55	.145	.015	.015	.019	.004	.160	.205	.006	.004	.030	.190	.198	.007
56	.114	.007	.008	.010	.002	.101	.126	.003	.002	.016	.190	.417	.004
57	.133	.009	.010	.013	.002	.134	.167	.003	.003	.020	.222	.277	.005
58	.061	.002	.003	.004	.001	.038	.047	.001	.001	.005	.156	.682	.001
59	.129	.004	.006	.007	.001	.089	.108	.002	.001	.010	.525	.115	.003
60	.036	.001	.001	.002	.000	.023	.028	.000	.000	.002	.116	.788	.001
61	.119	.002	.003	.004	.001	.048	.057	.001	.001	.005	.610	.148	.001
62	.105	.002	.003	.003	.000	.047	.057	.001	.001	.005	.717	.059	.001
63	.116	.003	.004	.005	.001	.069	.082	.001	.001	.007	.648	.063	.002
64	.119	.003	.003	.005	.001	.059	.071	.001	.001	.006	.665	.064	.002
65	.181	.007	.008	.010	.002	.123	.151	.003	.002	.016	.423	.070	.004
66	.092	.005	.005	.007	.001	.070	.087	.002	.001	.010	.185	.531	.003
67	.179	.012	.013	.017	.003	.158	.199	.005	.003	.025	.300	.079	.007

ALLOCATION BY RETAIL LOCATION AND MARKET AREA

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	5.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, SHARE												
AREA	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.017	.070	.025	.021	.035	.427	.200	.133	.002	.057	.003	.001	.009
2	.009	.239	.069	.043	.016	.176	.330	.092	.004	.014	.003	.001	.003
3	.005	.358	.134	.078	.021	.110	.081	.195	.007	.009	.002	.000	.002
4	.000	.905	.054	.024	.001	.006	.004	.004	.002	.000	.000	.000	.000
5	.006	.092	.070	.039	.003	.456	.314	.011	.003	.008	.002	.000	.002
6	.002	.300	.388	.156	.002	.097	.036	.011	.005	.001	.001	.000	.000
7	.002	.002	.004	.007	.000	.855	.127	.000	.000	.001	.000	.000	.000
8	.006	.054	.080	.087	.001	.547	.234	.003	.002	.005	.001	.000	.001
9	.004	.063	.301	.329	.001	.213	.079	.005	.003	.002	.001	.000	.000
10	.017	.003	.005	.010	.000	.716	.242	.001	.000	.003	.002	.000	.001
11	.012	.009	.017	.038	.000	.106	.813	.001	.001	.001	.001	.000	.000
12	.049	.011	.020	.040	.001	.773	.094	.001	.001	.004	.004	.001	.001
13	.195	.004	.007	.011	.001	.656	.106	.001	.001	.005	.011	.002	.001
14	.020	.004	.006	.012	.000	.857	.095	.001	.000	.002	.002	.000	.001
15	.410	.007	.010	.016	.001	.361	.142	.002	.001	.009	.032	.006	.003
16	.447	.008	.011	.017	.002	.328	.118	.002	.002	.016	.039	.006	.004
17	.636	.004	.007	.010	.000	.235	.073	.001	.001	.003	.025	.003	.001
18	.132	.058	.135	.204	.002	.333	.092	.006	.009	.007	.015	.003	.002
19	.002	.027	.186	.715	.000	.047	.017	.002	.003	.001	.000	.000	.000
20	.004	.105	.266	.472	.001	.066	.023	.004	.060	.002	.001	.000	.000
21	.003	.291	.344	.163	.002	.048	.024	.008	.114	.002	.001	.000	.000
22	.018	.080	.138	.282	.002	.109	.072	.008	.271	.006	.005	.001	.006
23	.007	.041	.061	.116	.001	.062	.038	.004	.641	.004	.002	.001	.001
24	.001	.039	.030	.019	.001	.012	.006	.002	.887	.001	.000	.000	.000
25	.003	.266	.077	.048	.038	.034	.034	.463	.006	.009	.001	.000	.002
26	.106	.008	.009	.016	.003	.232	.512	.006	.001	.050	.035	.007	.014
27	.009	.002	.004	.005	.000	.526	.443	.001	.000	.006	.001	.000	.002
28	.004	.002	.002	.003	.000	.122	.859	.000	.000	.004	.000	.000	.002
29	.014	.014	.009	.014	.006	.212	.391	.011	.001	.255	.005	.001	.047
30	.017	.012	.009	.014	.005	.213	.392	.008	.001	.235	.006	.002	.047
31	.009	.007	.007	.012	.002	.295	.610	.004	.000	.042	.002	.001	.005
32	.009	.009	.006	.009	.005	.136	.197	.007	.001	.537	.003	.001	.078
33	.119	.011	.012	.019	.005	.253	.332	.008	.002	.152	.042	.010	.054
34	.004	.307	.063	.050	.030	.060	.057	.385	.005	.015	.001	.000	.003
35	.002	.050	.018	.013	.169	.025	.029	.678	.003	.010	.001	.000	.001
36	.003	.025	.010	.008	.661	.037	.044	.192	.001	.014	.001	.000	.002
37	.012	.020	.013	.020	.194	.140	.245	.034	.002	.280	.004	.001	.036
38	.000	.005	.002	.002	.944	.003	.004	.032	.000	.007	.000	.000	.001
39	.003	.035	.016	.013	.671	.031	.050	.122	.002	.047	.001	.000	.007
40	.001	.001	.001	.001	.002	.013	.013	.001	.000	.868	.000	.000	.079
41	.001	.001	.001	.001	.001	.010	.014	.001	.000	.708	.000	.000	.263
42	.006	.003	.003	.004	.001	.065	.092	.001	.000	.544	.002	.000	.279
43	.020	.011	.008	.012	.003	.133	.229	.005	.001	.390	.006	.002	.181
44	.002	.001	.001	.001	.001	.018	.032	.000	.000	.469	.001	.000	.474
45	.010	.006	.005	.006	.003	.081	.140	.003	.001	.535	.003	.001	.206
46	.005	.003	.002	.003	.003	.039	.055	.001	.000	.686	.002	.000	.200
47	.006	.021	.010	.009	.287	.060	.074	.063	.002	.413	.002	.001	.053
48	.038	.020	.017	.024	.006	.226	.209	.008	.003	.336	.009	.003	.100
49	.023	.014	.012	.017	.006	.154	.255	.005	.002	.385	.006	.002	.118
50	.021	.013	.011	.015	.006	.143	.132	.005	.002	.460	.005	.002	.195
51	.011	.006	.006	.007	.005	.065	.104	.004	.001	.585	.004	.001	.204
52	.135	.013	.014	.017	.004	.165	.207	.005	.004	.028	.178	.225	.007
53	.137	.012	.014	.017	.003	.143	.264	.005	.004	.025	.187	.242	.007
54	.136	.012	.014	.018	.004	.150	.191	.005	.004	.028	.174	.259	.007
55	.147	.012	.012	.016	.003	.143	.181	.004	.003	.024	.213	.236	.006
56	.102	.005	.006	.007	.001	.078	.097	.002	.001	.010	.195	.493	.003
57	.128	.007	.008	.010	.002	.112	.139	.002	.002	.015	.244	.329	.004
58	.045	.001	.001	.002	.000	.024	.029	.000	.000	.002	.138	.756	.001
59	.117	.003	.004	.005	.001	.068	.081	.001	.001	.006	.597	.117	.002
60	.024	.001	.001	.001	.000	.013	.015	.000	.000	.001	.095	.848	.000
61	.101	.001	.001	.002	.000	.033	.038	.000	.000	.002	.671	.148	.001
62	.086	.001	.002	.002	.000	.031	.036	.000	.000	.003	.786	.052	.001
63	.099	.002	.002	.003	.000	.049	.057	.001	.000	.004	.724	.057	.001
64	.101	.002	.002	.003	.000	.041	.048	.001	.000	.004	.739	.058	.001
65	.178	.005	.004	.008	.001	.101	.122	.002	.001	.011	.492	.070	.003
66	.077	.003	.003	.005	.001	.050	.061	.001	.001	.006	.179	.613	.002
67	.184	.009	.010	.014	.002	.140	.174	.003	.002	.019	.351	.085	.005

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	1.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.27	5.52	3.56	3.23	1.19	6.76	1.81	0.00	.11	5.42	.86	1.92	2.04	32.67
10	2.40	13.59	8.75	9.70	2.65	25.23	18.46	5.49	2.06	22.21	2.50	.59	3.19	116.81
15	4.56	3.00	4.49	5.44	2.47	13.36	27.76	2.21	.91	8.71	1.42	.77	3.71	79.30
20	4.79	3.25	.62	1.06	1.56	37.06	44.63	2.88	1.15	8.60	1.75	.74	1.48	109.58
25	7.04	5.03	4.20	5.65	2.79	22.86	30.78	2.43	.92	9.81	3.07	.64	1.69	96.90
30	4.85	.93	1.64	1.28	1.36	6.46	12.46	1.07	.48	6.57	1.76	.75	1.65	41.28
35	1.89	1.67	1.84	1.87	.59	1.79	5.06	.57	.88	3.10	1.67	1.15	.67	22.75
40	.27	1.48	.86	.66	.17	1.32	1.83	.33	.75	1.97	.32	.85	.40	11.21
45	.05	.43	0.00	.07	.49	.45	.62	.58	.57	1.23	.13	.23	.22	5.06
50	0.00	.07	.30	.27	.20	0.00	0.00	.21	.32	.15	0.00	.07	.13	1.72
55	0.00	.28	0.00	0.00	.12	0.00	0.00	.06	.09	.62	0.00	0.00	.04	1.23
60	0.00	0.00	0.00	0.00	.11	0.00	0.00	.11	.03	0.00	0.00	0.00	0.00	.26
65	0.00	0.00	0.00	0.00	.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.04
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26.12	35.25	26.76	29.23	13.73	115.29	143.42	15.93	8.27	68.40	13.48	7.70	15.22	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	2.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.35	7.91	4.47	4.38	1.94	7.95	2.06	0.00	.18	6.79	1.28	3.17	2.77	43.26
10	2.96	15.80	10.22	11.14	3.86	27.45	19.32	7.16	2.55	26.83	3.40	.83	4.06	135.58
15	4.64	2.85	5.21	4.94	2.86	13.62	27.60	2.08	.79	9.79	1.73	1.05	4.26	81.43
20	4.54	3.00	.57	.98	1.35	34.51	40.82	2.62	.94	9.34	1.83	.84	1.59	102.94
25	6.16	4.29	3.60	4.88	2.20	21.08	27.43	2.02	.76	8.23	2.59	.61	1.37	85.21
30	4.01	.71	1.35	1.05	.99	6.12	11.03	.81	.38	4.82	1.33	.54	1.25	34.40
35	1.69	1.29	1.47	1.55	.46	1.74	4.83	.47	.62	2.20	1.31	.79	.49	18.89
40	.20	1.21	.75	.59	.14	1.32	1.81	.24	.54	1.53	.25	.61	.32	9.51
45	.04	.36	0.00	.06	.36	.45	.61	.46	.41	1.01	.11	.17	.16	4.22
50	0.00	.06	.27	.25	.15	0.00	0.00	.17	.26	.13	0.00	.05	.11	1.46
55	0.00	.25	0.00	0.00	.09	0.00	0.00	.05	.08	.55	0.00	0.00	.04	1.06
60	0.00	0.00	0.00	0.00	.09	0.00	0.00	.10	.03	0.00	0.00	0.00	0.00	.22
65	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.03
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24.59	37.72	27.92	29.83	14.53	114.23	135.51	16.18	7.53	71.21	13.64	8.67	16.44	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518.800	2.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.45	10.34	5.40	5.65	2.85	9.07	2.27	0.00	.27	7.96	1.82	4.86	3.55	54.48
10	3.58	17.87	11.46	12.41	5.40	29.41	19.90	9.01	3.06	31.35	4.36	1.11	5.00	153.96
15	4.57	2.67	5.36	5.55	3.29	13.60	27.16	1.92	.64	10.87	2.10	1.38	4.85	83.94
20	4.26	2.68	.52	.89	1.14	31.43	36.70	2.37	.76	10.11	1.98	.95	1.71	95.51
25	5.38	3.61	3.01	4.13	1.70	18.82	23.66	1.66	.62	6.88	2.23	.64	1.09	73.42
30	3.28	.52	1.10	.83	.70	5.67	9.41	.60	.29	3.46	1.00	.39	.92	28.17
35	1.51	.96	1.13	1.24	.36	1.65	4.52	.38	.43	1.48	1.00	.53	.34	15.51
40	.14	.96	.65	.52	.11	1.29	1.76	.16	.38	1.14	.19	.43	.25	7.98
45	.03	.29	0.00	.06	.26	.44	.60	.35	.28	.81	.09	.12	.15	3.49
50	0.00	.05	.24	.23	.11	0.00	0.00	.13	.20	.11	0.00	.04	.10	1.23
55	0.00	.22	0.00	0.00	.07	0.00	0.00	.04	.07	.47	0.00	0.00	.03	.90
60	0.00	0.00	0.00	0.00	.07	0.00	0.00	.08	.02	0.00	0.00	0.00	0.00	.18
65	0.00	0.00	0.00	0.00	.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.03
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23.19	40.18	28.89	31.50	16.09	111.58	125.98	16.71	7.02	74.64	14.78	10.45	17.99	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518.800	3.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.56	12.49	6.26	6.97	3.72	10.09	2.46	0.00	.37	8.84	2.41	6.83	4.51	65.32
10	4.26	19.71	12.49	13.49	7.20	31.14	20.25	10.94	3.57	35.51	5.27	1.44	5.96	171.23
15	4.34	2.47	5.42	5.46	3.75	13.35	26.51	1.74	.49	11.89	2.51	1.76	5.48	85.17
20	3.94	2.31	.46	.78	.97	28.18	32.66	2.13	.61	10.89	2.18	1.07	1.83	88.01
25	4.71	3.02	2.45	3.44	1.29	16.29	19.78	1.36	.49	5.78	1.97	.70	.87	62.15
30	2.65	.38	.88	.64	.48	5.15	7.78	.43	.21	2.45	.78	.28	.66	22.79
35	1.37	.69	.84	.96	.27	1.53	4.14	.30	.29	.95	.75	.35	.22	12.66
40	.09	.75	.55	.45	.09	1.26	1.69	.11	.26	.81	.14	.30	.18	6.67
45	.02	.24	0.00	.05	.18	.43	.57	.26	.19	.63	.07	.08	.13	2.86
50	0.00	.05	.22	.21	.08	0.00	0.00	.10	.16	.10	0.00	.03	.09	1.02
55	0.00	.18	0.00	0.00	.05	0.00	0.00	.03	.06	.40	0.00	0.00	.03	.76
60	0.00	0.00	0.00	0.00	.06	0.00	0.00	.07	.02	0.00	0.00	0.00	0.00	.15
65	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	21.94	42.28	29.58	32.44	18.16	107.42	115.84	17.48	6.72	78.24	16.09	12.85	19.77	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	3.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.68	14.20	7.63	8.23	4.42	11.00	2.61	0.00	.47	9.43	3.02	8.85	5.04	74.96
10	4.99	21.26	13.27	14.38	9.11	32.65	20.43	12.83	4.05	39.16	6.04	1.77	6.92	186.86
15	3.98	2.24	5.40	5.26	4.23	12.96	25.74	1.59	.36	12.82	2.94	2.18	6.15	85.88
20	3.56	1.92	.40	.67	.62	25.02	28.90	1.92	.48	11.65	2.43	1.19	1.97	80.94
25	4.14	2.50	1.95	2.83	.98	13.77	16.12	1.12	.39	4.93	1.80	.81	.70	52.03
30	2.15	.28	.71	.48	.32	4.62	6.30	.30	.15	1.72	.63	.20	.46	18.33
35	1.26	.49	.62	.73	.20	1.38	5.71	.23	.19	.58	.55	.23	.14	10.32
40	.96	.57	.45	.38	.07	1.20	1.60	.07	.18	.55	.11	.20	.12	5.56
45	.02	.19	0.00	.04	.12	.41	.54	.20	.13	.48	.06	.05	.10	2.33
50	0.00	.04	.19	.18	.06	0.00	0.00	.08	.12	.08	0.00	.03	.07	.84
55	0.00	.15	0.00	0.00	.04	0.00	0.00	.03	.05	.34	0.00	0.00	.03	.63
60	0.00	0.00	0.00	0.00	.05	0.00	0.00	.06	.02	0.00	0.00	0.00	0.00	.12
65	0.00	0.00	0.00	0.00	.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.02
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20.83	43.84	30.01	33.20	20.44	103.01	105.96	18.40	6.58	81.73	17.58	15.51	21.71	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	$18,800	4.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.79	15.47	7.68	9.37	4.91	11.78	2.74	0.00	.55	9.77	3.58	10.66	5.70	83.01
10	5.75	22.51	13.85	15.11	10.98	33.97	20.48	14.58	4.49	42.26	6.62	2.08	7.87	200.56
15	3.55	2.02	5.30	5.02	4.76	12.49	24.91	1.47	.25	13.64	3.38	2.62	6.83	86.25
20	3.16	1.55	.34	.56	.69	22.12	25.52	1.73	.37	12.36	2.69	1.32	2.11	74.54
25	3.67	2.05	1.53	2.31	.74	11.47	12.90	.91	.30	4.31	1.70	.95	.58	43.43
30	1.74	.21	.57	.36	.21	4.10	5.04	.20	.11	1.19	.54	.15	.32	14.75
35	1.17	.35	.44	.55	.15	1.21	3.26	.18	.13	.35	.40	.15	.09	8.42
40	.04	.43	.37	.31	.06	1.13	1.49	.04	.12	.36	.08	.14	.08	4.64
45	.01	.14	0.00	.04	.09	.38	.50	.14	.08	.35	.05	.04	.08	1.90
50	0.00	.03	.16	.16	.04	0.00	0.00	.06	.09	.06	0.00	.02	.06	.68
55	0.00	.13	0.00	0.00	.03	0.00	0.00	.02	.04	.28	0.00	0.00	.02	.52
60	0.00	0.00	0.00	0.00	.04	0.00	0.00	.04	.01	0.00	0.00	0.00	0.00	.09
65	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	19.89	44.89	30.24	33.80	22.71	98.64	96.85	19.39	6.54	84.94	19.05	18.13	23.74	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	518,800	4.50	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

	RETAILING LOCATIONS, MILLIONS OF DOLLARS													
MIN.	1	2	3	4	5	6	7	8	9	10	11	12	13	
5	.90	16.40	8.23	10.38	5.23	12.44	2.85	0.00	.61	9.92	4.07	12.16	6.32	89.50
10	6.54	23.47	14.28	15.71	12.66	35.13	20.43	16.14	4.87	44.84	7.03	2.36	8.79	212.25
15	3.09	1.80	5.13	4.72	5.34	11.97	24.07	1.39	.17	14.33	3.81	3.05	7.53	86.41
20	2.77	1.22	.29	.46	.59	19.52	22.50	1.56	.29	13.01	2.96	1.45	2.25	68.87
25	3.27	1.68	1.18	1.87	.56	9.51	10.25	.75	.22	3.91	1.66	1.12	.50	36.48
30	1.43	.15	.46	.27	.14	3.60	4.04	.13	.07	.82	.50	.11	.21	11.94
35	1.10	.25	.32	.41	.11	1.04	2.82	.14	.08	.20	.29	.10	.05	6.90
40	.03	.33	.29	.26	.04	1.04	1.36	.02	.08	.23	.06	.09	.05	3.89
45	.01	.11	0.00	.03	.06	.55	.45	.11	.05	.26	.04	.03	.06	1.55
50	0.00	.02	.13	.14	.02	0.00	0.00	.04	.07	.05	0.00	.02	.05	.54
55	0.00	.10	0.00	0.00	.02	0.00	0.00	.02	.03	.23	0.00	0.00	.02	.41
60	0.00	0.00	0.00	0.00	.03	0.00	0.00	.03	.01	0.00	0.00	0.00	0.00	.07
65	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	19.13	45.52	30.31	34.24	24.81	94.61	88.76	20.34	6.57	87.81	20.42	20.49	25.84	

ALLOCATION BY RETAIL LOCATION AND TIME DISTANCE

LOCATION	DATE	$ ALLOCATED	EXP.	CONST.
JANTZN BEACH	1977	516.800	5.00	5.00

COMMENTS - REGIONAL CENTER, VARIED WEIGHTS

MIN.	RETAILING LOCATIONS, MILLIONS OF DOLLARS 1	2	3	4	5	6	7	8	9	10	11	12	13	
5	1.01	17.06	8.68	11.24	5.42	12.99	2.93	0.00	.65	9.96	4.47	13.32	6.88	94.62
10	7.53	24.17	14.60	16.18	14.08	36.16	20.31	17.50	5.18	46.94	7.32	2.60	9.68	222.06
15	2.64	1.60	4.91	4.37	5.96	11.44	25.25	1.34	.12	14.91	4.21	3.47	8.24	86.46
20	2.40	.94	.24	.38	.51	17.25	19.81	1.41	.23	13.57	3.22	1.57	2.39	63.91
25	2.92	1.37	.90	1.52	.43	7.91	8.13	.62	.17	3.65	1.65	1.32	.44	31.03
30	1.19	.11	.37	.20	.09	3.13	3.24	.09	.05	.57	.47	.09	.14	9.73
35	1.04	.18	.23	.31	.08	.87	2.39	.11	.06	.11	.21	.06	.03	5.67
40	.02	.25	.23	.21	.04	.94	1.22	.01	.06	.14	.05	.06	.03	3.26
45	.00	.08	0.00	.03	.05	.31	.40	.08	.03	.18	.03	.02	.04	1.25
50	0.00	.02	.11	.11	.02	0.00	0.00	.03	.05	.04	0.00	.01	.04	.43
55	0.00	.08	0.00	0.00	.01	0.00	0.00	.01	.02	.18	0.00	0.00	.01	.33
60	0.00	0.00	0.00	0.00	.02	0.00	0.00	.03	.01	0.00	0.00	0.00	0.00	.06
65	0.00	0.00	0.00	0.00	.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.01
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
==>*	18.54 $OFF	45.85	30.27	34.55	26.70	91.01	81.69	21.23	6.62	90.25	21.63	22.52	27.94	

APPENDIX II

QUESTIONNAIRE

Hello, my name is _____, and I am doing a study on shopping patterns in the Portland area for my graduate thesis in Geography at Portland State University. May I take a few minutes of your time and ask you some questions?

1. Where are you coming from--home, work, or some other place?

____Home ____Work ____Other (specify)

2. Why do you shop at Jantzen Beach? Please look at this card and rank them from 1 being the highest to 3 in order of your reasons.

____Large selection ____Specialty shops ____Sales
____No sales tax ____Closeness to home ____Recreation
____Closeness to work ____Other

3. How often do you shop at Jantzen Beach? (Ask question first, and if no response, probe.) Weekly? Monthly? Twice a week?

____3 or more times a week ____Once in two weeks
____Twice a week ____Monthly
____Once a week ____Less often

4. How often do you shop a month excluding food? Please think back over this last month and estimate from that.

____One time ____8-9 times
____2-3 times ____10-12 times
____4-5 times ____12 or more times
____6-7 times

5. What shopping centers do you patronize the most? Could you tell me the three most important?

____a. Jantzen Beach
____b. Eastport Plaza
____c. Mall 205
____d. Gateway
____e. Lloyd Center
____f. Portland Downtown
____g. Gresham Mall
____h. Washington Square
____i. Vancouver Downtown
____j. Tower Mall
____k. Oregon City Shopping Center
____l. K-Mart-Levitz (S.E. 82nd and Johnson Road)
____m. Beaverton Complex (S.W. Western Avenue)
____n. Other-Specify____

6. When you go shopping normally, do you come from home, work, or some other place?

____Home ____Work ____Other

7. How many minutes does it take you to get to Jantzen Beach from home?

____minutes

8. Would you please look at this map and give me the number of the area in which you live? (If the person does not live in the area on the map, say:) Could you figure out where you live on this smaller map approximately and give me the number of the area?

_____

CALCULATIONS

Origin of Consumer Trip to Jantzen Beach Shopping Center

	Home	Work/Other	
Vancouver	44.71 47	18.29 16	63
Portland	21.29 19	8.71 11	30
	66	27	93 Total

$$X^2 = \frac{(47 - 44.71)^2}{44.71} + \frac{(16 - 18.29)^2}{18.28} + \frac{(19 - 21.29)^2}{21.29} + \frac{(11 - 8.71)^2}{8.71}$$

$$= .117 + .287 + .246 + .602$$

$X^2_{calc} = 1.252$ D.F. $= 1\alpha = .05$

$X^2_{crit} = 3.84$

Shopping Frequency at Jantzen Beach

	Weekly	Monthly	Less Often	
Vancouver	23 (18.97)	34 (28.45)	6 (15.58)	63
Portland	5 (9.03)	8 (13.55)	17 (7.42)	30
Total	28	42	23	93

$$X^2 = \frac{(23 - 18.97)^2}{18.97} + \frac{(34 - 28.45)^2}{28.45} + \frac{(6 - 15.58)^2}{15.58} + \frac{(5 - 9.03)^2}{9.03}$$

$$+ \frac{(8 - 13.55)^2}{13.55} + \frac{(17 - 7.42)^2}{7.42}$$

$$X^2_{calc} = .086 + 1.083 + 5.891 + 1.799 + 2.273 + 12.369$$

$$X^2_{calc} = 23.501 \quad D.F. = 2\alpha = .05 \quad X^2_{crit} = 5.991$$

$$\alpha = .005 \quad X^2_{crit} = 10.5966$$

Shopping Frequency in General

	Shopping Trips a Month			
	0 - 3	4 - 7	8 and above	
Vancouver	33.19 / 32	16.56 / 18	13.55 / 13	63
Portland	15.81 / 17	7.74 / 6	6.45 / 7	30
	49	24	20	93 Total

$$X^2 = \frac{(32 - 33.19)^2}{33.19} + \frac{(18 - 16.26)^2}{16.26} + \frac{(13 - 13.55)^2}{13.55} + \frac{(17 - 15.81)^2}{15.81}$$

$$\frac{(6 - 7.74)^2}{7.74} + \frac{(7 - 6.45)^2}{6.45}$$

$$X^2_{calc} = .043 + .186 + .022 + .09 + .391 + .47$$

$$X^2_{calc} = .779 \quad D.F. = 2\alpha = .05 \quad X^2_{crit.} = 5.991$$